

A CONCEPTUAL MODEL FOR FULL STATE SUPPORT OF
COMMUNITY COLLEGE CURRENT OPERATING EXPENSES

By

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A conceptual model for full state support of community college current operations is developed from the dominant themes appearing in the literature on community college purposes and finance. The conceptual basis for the model is presented in the form of six criteria for full state support of current operating expenses. The conceptual basis for full state support is compared with the current funding formula practice in each of the forty-seven states surveyed and analyzed. The funding formula is presented in two parts, (a) a Funding Process Model, and (b) an Allocation Formula Model. The Process Model is composed of three operations, (a) the annual cost analysis, (b) the legislative appropriation request, and (c) the allocation of funds to the colleges. The Allocation Formula Model is a mathematical equation designed to objectively apportion funds to a state's community colleges. The equation includes six elements representing the operational program functions of community

colleges and one element for special project funding. In the element for the instructional program, there are three adjustment factors developed to assist in maintaining funding equity between colleges. These are, (a) F_1 for enriching funding where colleges have a high incidence of faculty with high years of service, (b) F_2 for funding encouragement for all colleges to maintain marginal average class size, and (c) F_3 for funding encouragement for colleges to maintain marginal average teacher contact hour loads. In the element for physical plant operation and maintenance, there are two adjustment factors developed to assist with equitable funding between colleges. F_4 is a factor designed to compensate for maintenance costs that are higher than the state-wide average costs. F_5 is a factor designed to accomplish the same end in the case of higher than average plant operations costs. Each of the factors, F_1 through F_5 , is mathematically self-limiting, and the upper and lower limits may be easily adjusted by the state.

CHAPTER I

INTRODUCTION

Fiscal resources management is currently a topic of great concern in higher education. The universal scope of the problem is well documented in reports of the Carnegie Commission on Higher Education (Cheit, 1971, 1973; The Carnegie Commission, 1972). Millett (1972) pointed out that one recurring theme has appeared in higher education finance studies since the end of the decade of the '60s

Colleges and universities must be more self-conscious about their academic planning and about their management of resources available to them for accomplishment of objectives and programs. (p. 26)

Higher education finance studies have included three major foci:

1. Cost/benefit: Who benefits from and who should pay what share of the cost of college education?
2. Financial resources: What revenue resources are available and/or potentially available to support government's share of college costs?
3. Resource allocation: How shall public monies be equitably apportioned so that the intent of law is met, units of the system are treated fairly, and educational opportunities are universally available to the population?

The first two have traditionally been given more

attention by researchers in education and economics. The latter focus has only recently gained popular attention as the phenomenon of state-level accountability surfaced. Competition for tax dollars and rising costs have created crisis conditions for education in many states. Folger (1972) commented on the public demand for accountability resulting in changes in the locus of decision-making related to the allocation of resources.

The public has experienced the fact that increasing amounts of taxes are going to the state level. At the same time, appropriations of state tax funds for operating expenses of higher education have increased nearly fourfold during the growth period of the '60s. Chambers (1971) reported the weighted average percentage increase in state tax funds from 1962 through 1972 was 350 percent. This represented increases from \$1.7 billion to \$7.7 billion for that period. The amount increased again for 1972-73 to \$8.5 billion ("State Tax Funds," 1972).

In the case of the community college segment of higher education, Chambers (1968) noted the growth of public concern about increasing state tax appropriations. He said that

In 1967 about 25 states were making appropriations of state taxes for annual operating expenses of local public junior colleges. The 1966-67 aggregate being about \$300 million. For FY 1960-61, six years earlier the comparable total was less than \$60 million. (p. 176)

This public concern has continued to increase as the state appropriations for community colleges increased. By 1972-73 the state appropriations had increased to over one billion

dollars ("State Tax Funds," 1972), and the 1973-74 amount exceeded \$1.2 billion (Chambers, 1974a).

Though the community colleges have experienced phenomenal growth in numbers of institutions as well as in enrollments across the nation, there is evidence that growth in numbers is not the only reason for the increasing amounts of state taxes required. Another major factor is an identified trend toward a larger state proportionate share in financial support of public community colleges (Arney, 1969; Wattenbarger & Starnes, 1973). Medsker (1971) and Gleazer (1973) predicted the shift to more state support during the 1970s, and Monroe (1972) and Lombardi (1973b) commented on more states changing to full state support for community colleges.

At the same time that more states are funding larger portions of operating costs for the public community colleges, they are implementing accountability measures requiring information systems to facilitate better management. A systematic process for constant revaluation of resource utilization is becoming mandatory at all levels. At the state agency level, a part of this revaluation must relate to the apportionment of state funds among the community colleges.

Purpose of the Study

The purpose of this study is to develop a conceptual funding formula model for full state support of community college current operating expenses within a state-wide system of public community colleges.

Delimitations

The scope of the study is delimited to development of a model for objective allocation of state funds for current operating expenses of public community colleges that (a) are part of a state-wide system of community colleges, and (b) do not receive local or district taxes for operating expenses.

Limitations

The design of the model indicates parameters needed in a process for equalizing state funding allocations among community colleges having differing (a) enrollments, (b) curricular programs, (c) physical plant operations costs, and (d) stages of program and campus development. The design also provides a process for state funding incentives for efficient management of the resources of each college, and for encouraging exercise of local initiative in establishing and maintaining identified special needs programs.

Justification

Historically there is a distinct difference in approaches to funding public community colleges that lies in the initial decision on placement of the locus of control of the institutions. States initially perceiving the community college as higher education have tended to model funding practices in a manner similar to the four-year colleges and universities. Other states have tended to emulate public school funding practices. Only a few have developed procedures specifically designed for the community college objectives and programs.

Within the past decade, states accumulating some

experience with operation of community colleges have recognized shortcomings in the funding formulas adapted or adopted from other elements of the public education enterprise. Many states have sought to change funding methods to better meet the needs of community colleges. Concern with costs and resulting cost studies have added impetus.

The availability of data providing visibility to the true costs of operating various types of educational programs in community colleges makes it possible to reevaluate resources utilization at the state agency level. Within the established goals and objectives of the state to provide community college programs, it behooves those in state-level management to implement formulas or methods for apportioning state funds that include considerations for differences in costs of college operations.

The need for the development of more equitable formulas for allocating funds to public institutions of higher education is pointed out by Boutwell (1973) and Cohn (1974). This is supported further in the specific case of the community college by a National Educational Finance Project special study (Wattenbarger, Cage & Arney, 1970). Brossman states the case succinctly, "There needs to be more equity and efficiency in the allocation of state funds to community college districts" (1974b, p. 32).

Lausberg (1973) developed a model for funding community college operating costs which isolates state and local government costs as a portion of total costs. He suggested further research was needed on the topics paraphrased as questions here

1. Since the first offering of a course may be dependent upon the availability of funds to initiate and implement its offering, should start-up costs be integrated into a funding formula along with the ongoing expenditures usually recognized?
2. Should the funding formula have adjustments relating to the size of the colleges?
3. Should the funding formula have adjustments relating to the geographic location of the colleges?
4. Why are operating costs consistently higher (or lower) in cost at certain colleges?
5. What data about each college's operation should be collected and transmitted to the state agency for use as input to drive the funding formula process?

The development of a state funding formula which includes considerations of sources of differing costs for current operations among community colleges should provide a means for more equitable distribution of state funds. A state funding formula which includes provisions for a degree of state-level discretion in funding special projects should encourage both state-level leadership toward initiating change and local-level initiative toward implementing programs to meet special needs.

Related Research

Research studies either relating specifically to funding formulas or including funding formulas as a major consideration are few in number. Conversely, there are numerous finance related studies that deal with cost/benefit considerations and with financial resources existent and available. The more general research concerned with the macro-aspects of higher education finance must be excluded here.

This review of research includes only the studies

specifically related to and/or inclusive of community college program cost differentials, higher education cost studies applicable to community colleges, and budget/allocation formula studies applicable to community colleges. In Chapter II, a more comprehensive review of the literature from 1969 through 1974 on community college purposes affirms the criteria established by Arney (1969) from dominant themes he identified in the literature.

Formulas

In Morrison's and Martorana's study (1962) of community college support, the formulas in law and the methods in actual practice in the fifty states were reviewed. Their findings showed no evidence of funding differentiated by program in the states' formulas and apportioning methods. The states considered leaders in the thrust to provide community college education at that time either had a single state aid rate based upon some student attendance measure or had some form of minimum foundation program similar to the public elementary and secondary schools.

Miller (1964) studied the procedures for making budget request formulas and cost analyses in all state higher education in five states: California, Florida, Indiana, Kentucky, and Texas. He pointed out that several considerations in formula budgeting needed more in-depth investigation. Formula accuracy over long-range activity as institutions grow and change, the effects of formula budgeting practices on creativity and institutional innovation, and the significance of measuring units in formulas were questioned.

Walton (1967) synthesized a model for a state funds distribution formula to be used as a guide for state boards governing multiple institutions of higher education. His formula model was for current operating funds allocation and was based in part upon his study of sixteen states's existing methods of operations. The model utilized a salary base approach with each element (other than plant operation and maintenance) dependent upon a "salary factor" designated amount. The "salary factor" amounts related directly to an academic position.

Walton found in his study of the sixteen states that six states had state-level higher education boards using formulas to distribute funds received from their legislatures. The ten other state boards had formulas used in the preparation of budgeting requests, but did not directly administer funds allocations. He also found that

1. Seventy-five percent (12 of 16) used five categories: administration, general services, library, instruction, and plant operation and maintenance.
2. Fifteen used a measure of instruction as a base, and eight of these had "levels of instruction" categories.
3. Methods of dealing with library costs were diverse. Less than one third (5 states) used a percentage of instructional cost for library services; three made use of "student credits" as a unit measure. The remainder were unique.
4. Administration and general expenses categories were uniquely funded in all but four cases. The four states in common used a percentage of instructional cost for the category.
5. Five states used a percentage of instructional costs to determine amounts for plant operations and maintenance. Three of the others had an established unit of measure for physical plant amounts.

He presented his model in logic diagram form and as a mathematical model equating total state funds required for current operations to a ten element summation equation.

Arney's study (1969) of state patterns of financial support for community colleges was similar to the previous studies by McCallum (1955), and Morrison and Martorana (1962). Arney, however, did not concentrate so much upon state funding formulas as did Martorana. From the dominant themes identified in the literature about community colleges, Arney developed criteria for financial support and guidelines for testing state practices in financing community colleges.

Arney's analysis of the 1967-68 patterns of state support lead him to conclude that

1. All states had recognized some responsibility for post-high school education, but equal educational opportunity for all segments of the population who could benefit from this level of education was "militated against" by too many factors in practice.
2. There existed a close relationship between local support and local control in most states, and likewise a close relationship evident between state support and state control.
3. State-wide planning was lacking in about half of the states having community colleges (eight states had no community colleges).
4. State and local support of operating expenses as a shared responsibility was predominant, but state and local shared support for capital outlay was evident in only half of the states.
5. The states had increased their share of funding for locally controlled community colleges since 1960-61, students were providing a smaller share, and federal funds were greater.
(pp. 103-106)

There was considerable evidence of change in the funding formulas used by the states as presented in Arney's study when compared with the earlier findings of Morrison and Martorana. Whereas the 1960-61 study showed no evidence of funding differentiated by program or cost center, the later study in 1966-67 indicated that a majority of states were using some form of objective formula to apportion state funds to the community colleges. Arney reported that three of these states, California, Florida, and Montana, had instituted an objective formula with equalizing measures based upon factors identified as affecting costs of various curricula programs.

Lausberg (1973) developed a funding model for community college operating costs. His study relied heavily upon the findings of Arney and others in developing a model to advance the major goals of community colleges. Through the funding model, emphasis is placed upon recognition of postsecondary educational responsibilities by states, equal educational opportunity for all students, equalization of funding support among districts and among educational disciplines, and local initiative and control of resources.

Lausberg's model is essentially a state/local shared support model for funding. Though he mentions that states fully funding community colleges need only use a zero value for "B", local funds allocations, and the model would still apply, there are logical contradictions which may limit its applicability for full state support. The "B" appears in two parts of the mathematical representation of his model.

$$A + B = T + G + J - (C + D + DG)$$

Model isolating state and local government costs as a portion of total costs where

A = state allocations sum divided by state-wide FTE, or state allocation per FTE.

B = local allocations sum divided by state-wide FTE, or local allocation per FTE.

T = state-wide total expenditures sum divided by total FTE, or total cost per FTE.

G = cost-of-living adjustment for average loss in purchasing power from base year to the funding year.

J = allowance for carry over fund balances.

C = federal funds for instruction divided by total FTE, or federal funds per FTE.

D = uniform fee deduction per FTE.

DG = cost of living adjustment for student fees (Lausberg, 1973, p. 42)

And

$$S = L + M + N + O - B$$

Total state allocation determination where

S = sum total state allocation

L = basic funding support per FTE.

M = student fee adjustments.

N = high cost educational settings.

O = opportunity grants for special state designated projects.

B = a deduction for local required millage. (Lausberg, 1973, p. 52)

With all costs folded into FTE student enrollments by discipline and averaged on a state-wide basis, colleges with above average costs would be underfunded and colleges with

less than average costs would be overfunded. This situation would be compounded where local support was not available and, therefore, could not be utilized to adjust for income and expenditures differences. Fixed costs unique to individual institution's computation of marginal costs for educating students would be beyond the management capability of administrators. The state funds would be insufficient and there would be no way to recover deficits other than by increasing students' fees.

The model also discourages colleges from seeking direct federal support; any such support is deducted after state-wide averaging. If a college could not maintain federal income at the state-wide average per FTE student, its resources expended toward securing direct federal aid would be a losing proposition. If all colleges refused to seek or accept direct federal aid, the state money would cover actual costs anyway.

The model discourages low student fees by the way cost-of-living adjustments of student fees are computed. The amount deducted from state funds is base-year student fees adjusted upward by the cost-of-living factor. This encourages individual colleges to raise fees at least an amount equal to the change in the cost-of-living factor used in the state funds deduction.

Lausberg's total state allocation equation includes a most desirable feature called opportunity grants. These discretionary funds available from the states as incentives for local excellence and initiative would be available on a

project grant basis, 100 percent funding, for special programs. This alleviates the problem of high start-up costs often not taken into account in funding an on-going program. It provides a vehicle for both state-level leadership in setting direction for change and local initiative for determination of the extent of change desirable for better service of needs (1973, p. 32).

Cost Studies

Witmer (1967; 1972) has conducted two major research reviews tracing the history and significant publication on unit cost studies and cost studies in higher education. In his earlier study on unit costs, one of his stated justifications for conducting unit cost studies was that information could be accumulated that is useful in decisions relating to funds allocations within education. His later concentration on higher education cost studies traces the unit-cost-of-education concept from its beginnings to the studies of both G. D. Strayer and E. C. Elliott in 1905.

Witmer found that the "Allen survey" of expenditures at the University of Wisconsin in 1915 expressed costs in terms of full-time students (costs per full-time student). A year later, 1916, the U. S. Bureau of Education expressed costs of education in the state of Washington in student clock-hour units. F. J. Kelly recommended in 1923 that credits be used as the cost measuring unit because they were the "products" of higher education (Witmer, 1972, p. 107).

The earliest attempt to standardize this area of concern

was in reports by the 1932 National Committee on Standard Reports for Institutions of Higher Education. Two plans were outlined to establish a recognized technique for computation of unit costs such that the data would have meaning and value both internal and external to the individual institution. One plan advised dividing total educational and general expenditures by total full-time equivalent enrollment. The second plan advised the distribution of administration, library, and physical plant costs among instruction, research, extension services, and auxiliary enterprises in proportion to their respective budgets. The resulting total amounts in each category would then be divided by the full-time equivalent enrollment (Witmer, 1972, p. 108).

This farsighted early "commission" studying higher education in a national context made what was perhaps the first recommendation that unit costs calculations be made by department and major program of study (discipline), and by instructional level (junior college, upper division, graduate school).

The use of the professional position as a unit of measure was introduced in 1954 by Hungate (Witmer, 1972). He divided instructional expenditures by the number of full-time faculty.

A study contributing much of the findings on costs was conducted under W. T. Middlebrook's leadership in 1954-1955. Known as the "Council of Ten Study," it established that

- (a) unit costs change as the student mix changes;
- (b) unit costs are lowest where the number of curricula are lowest;
- (c) significant variation

in unit costs exists among institutions within given academic disciplines; and (d) cost functions are curvilinear rather than (straight) linear. (Because of the changing mix of fixed, semi-fixed, and variable costs, changes in unit costs form an irregular pattern. In some cases decreases in enrollment do not decrease total cost!). (Witmer, 1972, p. 118)

The general concept of economies of scale was pointed out by Russell in 1958 and N. W. Hanson in 1964. Their studies showed that larger schools generally had lower unit costs than smaller schools (Witmer, 1972).

Fowler's study (1970) of operations costs at eight carefully selected representative community college provides data on differential costs of liberal arts and vocational programs. He determined the unit cost per credit hour of each vocational program offered at the colleges and established cost ratios for these programs. The cost ratios were calculated by dividing the average cost of the transfer curriculum courses (liberal arts program) into each vocational program unit cost.

With liberal arts adjusted to unity, Fowler found that business occupations were 1.13, social and public service were 1.33, vocational (trades) were 1.51, health related occupations were 1.55, and technical occupations were 1.65 times the unitary cost (Fowler, 1970, p. 105).

The factors found to be contributing to the total expense of the college by percentage of cost were

Auxiliary services	3.90 percent
Instructional resource center (Library)	5.34 percent
Student personnel services	8.37 percent

Instructional support services	9.80 percent
General administration	10.17 percent
Plant operation and maintenance	11.04 percent
Instructional salaries	51.31 percent

Fowler (1970, p. 108) found that the single most important factor affecting curriculum costs was the ratio of students to teachers. He identified differential costs between levels of instruction within programs: the second year of instruction costs more. There was also a direct relationship between equipment requirements of programs and their unit costs.

Wattenbarger, Cage and Arney (1970), participating in the same National Educational Finance Project special study with Fowler's assistance, reported these overall conclusions

1. Most of the business oriented programs are comparable in cost to the liberal arts programs.
2. The liberal arts programs which emphasize science or engineering are more expensive than the general programs but less expensive than technical programs.
3. Special requirements such as rent on data processing equipment causes some programs to report a high cost differential.
4. New Programs often have a higher cost differential during early years than will be true later.
5. Consideration of expenditures for capital outlay will increase the cost of a program as much as 22 percent in data processing, 21 percent in a machinist program or 20 percent in automobile mechanics.
(p. 126)

Procedures

The procedures are described in three parts. The first details the design of the study. The second explains the

sources of information. The third presents the method for application of the information in developing a conceptual funding formula model.

Study Design

A thorough review of research on the purposes of community colleges, the costs for providing community college education, and the use of state community college funding formulas was conducted. From the research, purpose criteria and operating costs differentials were identified for use in developing the conceptual framework for a comprehensive funding formula model.

A survey of the formulas for allocating state funds appropriated for support of current operating expenses of public community colleges was conducted to determine the current practices (1972-74) among the states. The survey was accomplished by requesting state funding formula information from appropriate state community college officials in the fifty states. The currently used formulas were analyzed to ascertain similarities and dissimilarities appearing among the methods. Through this analysis, typological models of the apportioning methods were identified for comparison with the conceptual funding formula model under development.

The conceptual funding formula model was developed from the information collected on community junior college purpose criteria, operating costs differentials, and currently used state funding formulas. An actual field test of the model was impractical due to the scope of involving an entire state

system of colleges; therefore, hypothetical tests of the applicability of the model were constructed through comparisons with current funds apportionment practices.

Sources of Information

Information for this study was obtained through a review of research pertaining to the purposes of community colleges, the costs of providing community college education, and the use of allocation formulas to apportion state funds to community colleges. Information was also obtained from copies of state statutes, regulations, operating procedures, and official memoranda on state funding and community college purposes.

Application of Information

From analysis of the research and the currently used state funding formulas, generalizations were drawn and criteria developed for symbolically presenting a conceptual funding formula model for full state support of community college current operating expenses. The conceptual model is based upon the identified purpose criteria for providing community college education and upon identified current expense operational cost differences.

The information from official state documents was used to construct hypothetical test situations to illustrate application of the model and provide a basis for evaluating its functionality.

CHAPTER II

REVIEW OF RELATED LITERATURE

Dominant Themes

Arney (1969) reviewed the literature published during 1945-1969 to identify the dominant themes evident in the writings of the leaders who helped determine community college philosophy. Major concepts relating to community college finance that occurred ten or more times in the 75 literature selections reviewed were identified as dominant themes. The dominant themes he found were

1. Post-high school education is a public responsibility.
2. Equal educational opportunity for all who may benefit from it should be provided at the junior college level of education.
3. Community junior colleges should be sensitive to local needs; therefore, they should be controlled locally.
4. There should be a state plan for the junior college level of education, coordinated by a state agency.
5. The state should assume an important role in the finance of the junior college level of education.
6. State support for the junior college level of education should be provided for both credit and non-credit courses.
7. The state should assume an important role in the provision of capital outlay for junior colleges. (p. 15)

These themes representing the community college philosophy in America were used by Arney (1969) to develop a set of criteria for evaluating the financing of community colleges in the states. His criteria were

1. The state considers the junior college level of education to be a part of the publicly supported system of education.
2. The state provides equal educational opportunity at the junior college level for all who may benefit from this level of education.
3. Local support is an integral part of a state community junior college system in which each junior college is governed by a local board.
4. The state has a unified approach to post-high school education; therefore, the state provides state coordination of a state-wide plan for junior colleges.
5. The state provides a partnership between the state and local government in funding current expenses for junior colleges.
6. The state provides financial support for all programs which are offered by the junior college.
7. The state provides for a partnership between state and local governments in the funding of capital outlay for junior colleges. (pp. 47-48)

A similar approach was used to reaffirm or revise Arney's findings. A series of six ERIC searches were planned and executed. The objective was to identify literature selections published since 1969 which related directly to the philosophy of the community college, its purposes, and to financing these institutions. The search topics in chronological order were (a) Financing Community Colleges; (b) Junior College and Community College Purposes; (c) State Funds to Finance Junior Colleges; (d) Equal Educational Opportunity at the Community College Level; (e) Local Control

of Community Colleges through Local Boards and State-wide Planning and Coordination by a State Agency; and (f) State Role in Financing Community Colleges: State Financial Support for Credit and Non-Credit Courses.

Approximately 100 literature selections from the ERIC searches and other sources were reviewed. Following the procedure used by Arney (1969), concepts occurring ten or more times were considered to be dominant. Capital outlay considerations were excluded.

The dominant themes recurring in the current literature are confirmed in the following paragraphs.

Postsecondary Education: A Public Responsibility

Cosand (1971a) said, "We now agree, on paper, that postsecondary education is also a right and not a privilege for those who are so motivated and can profit from the opportunity to grow culturally, socially, and occupationally" (p. 156). The concept of postsecondary education as a right of the citizen comes directly from the American democratic tradition of free public education. Heywood (1970) suggested that higher education was becoming a citizen's right, as secondary education always was. Likewise, Godwin and Mann (1972) said, "Postsecondary education is regarded by a majority of parents and students as a right, not a privilege" (p. 1).

The idea that the individual has a right to postsecondary education stems from the constitutionally assigned responsibility of the states for education. Millard (1973) said, "Historically and constitutionally, the states have

the primary responsibility for education, including post-secondary education" (p. 8). Berke (1972) in discussing the rationale for school finance points to the state's responsibility, and Glenney (1974) said, "The states hold legal responsibility for education" (p. 65). This state responsibility is recognized pointedly in two recent national commissions' reports on postsecondary education (Carnegie Commission, 1973; Evans, 1973).

Wattenbarger (1971) has said that the concept of free public education is a basic element of the tradition of democracy in America. He concludes from implications found in the results of several economic studies that a high socioeconomic status of living results when support for education is guided by certain basic public policy decisions. These include (a) "education through the post high school years ... made available to all"; (b) "fees ... kept low and eliminated entirely as soon as possible"; (c) "factors which encourage attendance ... given careful attention"; and (d) "general taxation ... the most defensible basis for supporting public post-high school education" (p. 20).

Several other authorities base their assertions of the public responsibility for providing postsecondary education upon economic considerations. Cohn (1974) devotes the ten-page introduction of his book on the economics of state aid to his rationale for the public responsibility for education. Brossman (1974b) stated, "Public tax support is normally justified by the notion that all individuals benefit

from the 'collective output' from higher education" (p. 31). Bowen (1973) supports this concept in his position that society is the major beneficiary of the investment in higher education, and, therefore, should be willing to provide for the cost of instruction. Chambers (1974b) said that

The Census Bureau continues to report that holders of four-year college degrees normally accumulate \$200,000 to \$300,000 more in lifetime earnings than persons having no formal education beyond high school; and that the additional federal income taxes, state income taxes, sales taxes, property taxes, and virtually all types of taxes paid as a result of these additional earnings return to the state and the nation much more than the original tax cost of the tuition-free or low-fee education provided at public expense. (p. 8)

Economic considerations are also primary in the emerging policies relating to the state's responsibility for the welfare of private colleges (Lombardi, 1973a, p. 115): a strong indicator of public postsecondary responsibility. The crux here is the public responsibility for education regardless of level or location. Benson (1973) evaluated the problem of rethinking educational finance and said, "The usual separation of issues of financing higher and lower education has no basis in logic. Resource allocations in both segments would be improved if financial questions were dealt with in a more integrated fashion" (p. 35). Monroe (1972) concurred in this concept, having said, "The principles and traditions upon which the public schools were built are also the principles and traditions which guide the public community colleges" (p. 1).

Equal Educational Opportunity: A Continuing Community College Goal

Equal opportunity to be educated is the foremost theme in the literature. It has been the basis of numerous court cases, and is considered fundamental to policies for allocation of resources to schools. Cambell (1972, p. 152) quoted a report of the Advisory Commission on Intergovernmental Relations which said, "Equality of educational opportunity is of critical importance in a democratic society dedicated to the proposition that all persons should have an equal chance to develop their potentialities to their fullest." The Committee for Economic Development (1973) through its Research and Policy Committee has stated that

Education beyond high school is often an important factor in determining an individual's chances of achieving economic success and attaining a life-style to which he or she may aspire. Equality of postsecondary educational opportunity, therefore, is essential to providing each person a fair chance to move into and along the mainstream of socio-economic life. (p. 20)

Willingham (1973) has written of the financing of higher education being a critical process because of its heavy bearing on equality of educational opportunity. This is supported by Levine's (1973) plan for financing equal educational opportunity, and by Evans (1974) presentation of the success of California's Extended Opportunity Programs and Services effort. Cohn (1974) has related the issue to both general social equality and finance

Equality of education, although conceptually related to the general call for social equality in other sectors of society, has a special significance and urgency of its own. There are two reasons for this distinction: (1) equality of education can serve as a base upon which equality in other areas can be accomplished more easily, and (2) the financial support for education is under the control of the state and not a defacto condition occurring in its own right. (p. 25)

Two major parts of the equal opportunity problem, each dependent upon finance, are access and curriculum. Equal access is dependent upon geographical proximity to an institution and the personal finances of the student. Curriculum opportunities are dependent upon geography, personal finances, and program appropriateness.

Blocker and Bacon (1973) call for means to fulfill the mandate of equal access for all. Cosand (1973b) questions whether the community colleges have met the goal of equal access, quality of opportunity, and the emphasized role of "peoples colleges" which provide educational opportunity. A recent Illinois Community College Board (1974b) staff paper recommends, "Expanded access to educational opportunities should be provided through comprehensive quality educational programs offered in public community colleges situated in all regions of the state at low cost to students" (p. 3). The Carnegie Commission's (1973) final report includes the suggestion that

The creation of a sufficiency of open-access places, particularly at the lower-division level, defined as places available at low or no net tuition and within commuting distance for all high school graduates who wish to attend. We have recommended the spread of community colleges in all populous areas throughout the United States. (p. 35)

The Commission also calls for the elimination of, "all remnants of inequality of educational opportunity due to race, sex, family level of income and geographical location ... substantially by 1980 and as completely as possible by the year 2000" (p. 35).

In the matter of equal access, fees or costs to the student are considered a significant barrier. Chambers (1974b) attacks the developing pressures for fees-at-full-cost policies saying that the inevitable result would be to halt and cut back the expansion of educational opportunity. Wattenbarger (Wattenbarger, Schafer and Zucker, 1973) believes increasing costs to the student cannot do other than interfere with the fulfillment of the established goal of the community college to increase educational opportunity for all citizens. Brossman (1974b) has said with respect to minority and low-income student's dependence upon loans to finance expenses, "many of these individuals ... have had poor experiences with loans and creditors. The use of loans may preclude attendance ... and thus be contrary to an equal opportunity objective" (p. 31).

With respect to the total cost to students, McMahon (1974) has said that

The rapid growth of public junior colleges draws on the more longstanding and predictable bases of state and local support, while simultaneously lowering out-of-pocket room and board costs. This improves the access of poor families in urban areas to postsecondary educational opportunities. (p. 93)

His extensive study of the investment behavior of the various levels of government and of students and their families in higher education has led him to conclude that there are four main economic determinants to investment in college. Foremost is an idea of the desire for equity in educational opportunity.

He surmised, "it is not just the growth of educational capital stocks which low tuitions encourage, but also the extension of higher education opportunities to the poor" (p. 138).

The roles of federal and state governments in providing financial aid programs to expand access and opportunity to students is commented on by Etzioni and Milner (1970), Boyd (1973), the Committee for Economic Development (1973), The Carnegie Commission (1973), and the National Commission on the Financing of Postsecondary Education (Evans, 1973).

The importance of curriculum as a part of equal opportunity at the community college is pointed out by Gleazer (1971), "We need a curriculum based upon the assumption that educational opportunity beyond high school truly should be universal" (p. 13). Medsker and Tillery (1971) sum up the consensus about the nature of the comprehensive community college program as a program for all, but issue this challenge, "The expectation which the nation has placed on this institution as a means of equalizing educational opportunity could be lost for want of programs for students whose abilities, backgrounds, and interests are as diverse as those of a high school senior class" (p. 147). Hall and Associates (1974) more recently gave a similar opinion on the importance of curriculum when they said,

Although we have been relatively successful in providing access to new students, we have been less successful in reaching the goal for which access is only the means -- equality of opportunity through postsecondary education. ... many new students regard the kinds of access they have

been given -- access to old educational content and format -- as an empty gesture. The high rates of failure and voluntary withdrawal among new students are evidence of this emptiness. Real equality of opportunity, then, demands that we do more than toss new students into revolving open doors. (pp. 194-195)

Local Control to Meet Local Needs

The traditional concept of local control, of local autonomy, which has been linked with local support of community colleges is being challenged on many fronts. Fincher (1974) writes of the contradictions and ambiguity of public expectations for higher education. One of the four current major issues discussed is the paradox of expecting both diversity and unity: the concerted efforts of policy-makers to centralize at the same time institutional autonomy or local control is acclaimed as necessary to be preserved.

The Carnegie Commission (1970) recommended strongly for local control of community colleges, and in their final report (Carnegie Commission, 1973) they favor, "The preservation (or creation) of strong boards of trustees with basic responsibility for the welfare of institutions of higher education" (p. 57). After analyzing lay trusteeship in the community colleges, Lahti (1973) concluded that, "the concept of an impartial board as the ultimate protector of the long-range welfare of an institution is still sound" (p. 18).

Monroe (1972) traces the local control concept in community colleges to those principles and traditions upon which the public schools were built. These are

1. Universal opportunity for a free public education for all persons ...

2. Local control and support of free, nontuition educational systems; and
3. A relevant curriculum designed to meet both the needs of the individual and those of the nation. (p. 1)

Cosand (1971) states, as a requirement for fulfilling the equal opportunity objective, the need for "strong colleges which serve local needs and which provide state-wide access" (p. 158).

There are strong arguments in favor of local involvement in community colleges (Medsker & Tillery, 1971). This is recognized by Mood (1973) in the call for the colleges to become learning centers collaborating closely with local industry and government. Indeed, one of the universally accepted purposes of community colleges is community service and providing public programs and events to "raise the cultural level of the community" (Koos, 1970). A requisite to achieving this purpose is community involvement.

Maintenance of local involvement and a sensitivity to local needs is an emotional issue revolving around increasing state support and its impact on local versus state control (Lombardi, 1973b). Moore (1973) recognized that absolute control is at the state level and is implemented in various ways, but said, "The real impact of the college control is at the local level and in the hands of a local board of trustees" (p. 171). The role played by lay trustees and the leadership that must be provided by the local boards in order to survive and meet the needs of their institutions has come under close scrutiny (Ingram, 1973; Thompson, 1973).

The apparent ineluctable trend toward majority support or total support from the state level casts doubt that decision making can be retained locally (Gleazer, 1973). Gleazer (1971) had voiced his concern earlier when he said

With a larger share of the support dollar coming from state and federal levels, will community responsiveness, involvement, and identification be reduced? ... To what extent will the program of the institution be shaped or influenced or determined by forces external to the institution or to the community in which it is placed? (p. 5)

The visibility of this trend toward more governance responsibility at the state level has increased in the past five years as the "power structure" has changed (Wattenbarger, 1973). Some observers of the community college scene see it as a trend away from local operation toward total state control (Monroe, 1972).

The economic condition existing in the nation forces a greater dependence of community colleges upon state and federal support. This need not mean total state control, however. At the same time that college support must be supplemented by state and federal sources, Kerr (1971) said, "The colleges must be left operationally free to experiment and innovate as their roles and the changing times require" (p. viii). This has historically been the case as was pointed out by Medsker (1971) when he said,

The practice of operating community colleges under the jurisdiction of a local board but almost always with a degree of control and coordination by the state is the oldest, most prevalent, and most complex of the various governance forms. (p. 107)

The degree as well as the locus of control are very important. The final determination of any state's pattern of governance

must be based upon the set of considerations appropriate for the particular state in question.

State-wide Coordination of a Master Plan

State-wide coordination implies some degree of control. The advocacy of some degree of state-level control is intertwined with the local control theme in the literature on governance. The relationship is usually spelled out in a master or comprehensive plan for meeting a state's post-secondary education goals.

The successful development of community colleges depends upon the extent to which there are well-designed state plans for them (Medsker, 1971). Millard (1973) recommends

That community colleges clearly recognize and support the principle that effective planning for community colleges has as its correlate and precondition effective state-wide planning for the range of postsecondary education. (p. 56)

He sees the need for state-wide planning and coordination including community colleges as a mandate because

Today public concern with equality, quality, and diversity of education to meet the variety of career and manpower needs has made coordination within the states essential if the postsecondary educational systems -- public, private, and proprietary -- are to meet the needs of society. (p. 8)

Gleazer (1974b) recognizes the mandate as "quite clear".

Blocker and Bacon (1973) say, "Each state's community college system should work out its mission after assessment of state needs" (p. 10). Cosand (1973a, p. 10) advocates a cooperatively developed state plan for postsecondary education.

He has said, "There must be a plan defining the function, structure, and financing of postsecondary education for each

of the 50 states of which the community college as a comprehensive institution is an integral part" (Cosand, 1971a, p. 159).

The Carnegie Commission (1970) reported on policies for community colleges and recommended strongly for state master planning. The Commission's final report expressed favor for, "The exercise of state responsibility for coordination through broad instruments [comprehensive state plans] " (1973, p. 57). Brossman (1974a) supports state-level coordination and cooperation, but strongly advocates local control of community colleges. Williams (1972) views the key to real progress in education and sanity in educational cost controls as dependent upon effective state-level coordination.

Use of a state master plan and state-wide coordination by a state agency is indicative of the universality of this concept. Purdy (1973, p. 126) referred to the study by Wattenbarger and Sakaguchi (1971) where it was found that forty-three states had a state-level agency responsible for coordinating, planning, and in some cases controlling the community college level of public education. That virtually every state has some overall plan and mechanism for state-wide planning and coordination is recognized by Martorana (1971, p. 154) and Monroe (1972, p. 358). Glenny (1972) commented

No doubt remains that all governments now seek new coordinating and planning agencies to force faculties and administrators to make the learning environment more responsive to societal and

student needs. ... Each institution must be considered as one in a web of many different types of institutions making up the composite mosaic of postsecondary education. (p. 10)

Chambers (1974b) cited developments in each of the states as they are related to finance, comprehensive master planning, and state-wide coordination and control. New or revised master plans are reported as recently mandated or implemented in states such as California, Illinois, Iowa, Kansas, Maryland, and New York.

There is little doubt among community college leaders that the direction is toward more coordination and more planning at the state level for community colleges, and there is good reason. Each state is responsible for its educational system and must make certain that the interests of all its people are served (Medsker, 1971, p. 145).

The State's Role in Financing Community Colleges

The state's role in financing higher education is directly related to the public responsibility for providing postsecondary education and to the benefits realized. Schultz (1972, Chap. 1) analyzed the investment in college education in the United States as to social efficiency and equity. His human capital stocks concepts provide some of the soundest arguments for significant public investments in education. Cohn (1974) commented that

It has been recognized that whatever externalities that higher education creates are likely to spread over a wider geographical region than is the case for elementary and secondary education. Therefore, there is a stronger case for involving higher levels of government such as the state and federal agencies in the regulation and/or support of higher education. (p. 134)

The question of "who benefits most" and, therefore, "who should pay what share" of the costs of higher education has been a subject of debate that has heightened during the present financial pinch. Hartman (1970) suggested the focus should be on certain basic principles: (a) the goal of equal opportunity, and (b) provision for "below-cost" higher education to guarantee public and private benefits are considered in enrollment decisions. In this respect, Thackrey (1972) said

On the issue of "who should pay," society's interest in, and the responsibility for, making educational opportunity available is clear. The economic benefits to society in general and to the individual, have been demonstrated. ... Society as a whole should finance at least a substantial portion of the direct cost of providing instruction and facilities for instruction. (p. 155 and p. 158)

That society benefits appreciably from the public investment in community colleges is amply illustrated by the 18 percent rate of return reported by Heinemann and Sussna (1971) in their cost/benefit study.

The National Commission on Financing Postsecondary Education (NCFPE) reported that the fifty states have shared a number of objectives in meeting their responsibilities for support of postsecondary education (Evans, 1973). All states seek to provide

1. Maximum postsecondary educational opportunities for their citizens according to the financial resources available to states and the attitudes of their citizens regarding government's responsibility for providing such opportunities; and
2. Training in professional and technical occupations believed to be important to the economic development of each state and the welfare of its citizens.

[Two objectives not applying to community colleges are omitted.] (p. 82)

Boyer (1973), with commissioners La Follete, Rodriquez, Porter, and Silva agreeing, added these comments for the final report

1. State and local governments have the primary public responsibility of providing basic institutional aid to postsecondary education.
2. Public institutions, as a general rule, should receive their primary institutional support from state and local governments. Such support should be adequate to maintain an excellent and diversified network of two-year, baccalaureate and graduate institutions in each state. State and local support should be sufficient to make it possible for public institutions to provide two years of postsecondary education to all qualified students, preferably at no cost to the student, but at least at tuition rates not exceeding present levels. (p. 362)

Other commissioner's comments voiced both supporting and, on some issues, different positions.

The state's role in finance may be evaluated both from "state versus local" sharing of the public responsibility and from "state versus student" sharing (the tuition question). In the first case, the NCFPE reported that, "In general, . . . the local responsibility for operating and financing two-year colleges appears to be declining as a result of increasing opposition to heavy reliance on local property taxes . . . and growing state interest in improving state-wide coordination and planning" (Evans, 1973, p. 84). Brossman (1974b) favors the decrease in financial burden on local taxpayers: the funds to be replaced by "increases in support from state and federal sources" (p. 31). Recent court cases based essentially on the inequities inherent

in variations among local district support in a state have been discussed at length by Mills (1973). Most point in the direction of more state support.

Johns (1972) believes that, to insure equity in education, what is needed is "a small degree of local financing to stimulate innovation and experimentation, but ... primary reliance on funding from the state and federal governments" (p. 6). Medsker (1971) stated three strong arguments favoring increased state support for community colleges: "(a) it tends to equalize the burden of ... support, (b) it draws on funds from sources other than property taxes, and (d) it places the funding ... on somewhat the same footing as other public higher education" (p. 145). He believes a larger proportion of the total revenue for community colleges will come from state sources in the future. Lombardi (1973a) agrees the state's share of community college revenues will increase saying, "a minimum of 50 percent up to full state support (minus tuition and federal aid) is expected" (p. 112). Monroe (1972, p. 396) agrees.

Wattenbarger, Holcombe, Myrick and Paulson (1973) denote the reason for asking the state to increase its share of community college support as the demand for equal educational opportunity at the community college level. Increasing the state's role in community college finance is needed because local sources of tax revenue are not sufficient to

1. Meet the demands of increasing enrollments, especially where a large percentage of the population continues education;

2. Meet the demands for increasing services, especially where the door is truly open to "new" students having a wider range of abilities and ages;
3. Meet the demand for comprehensive programming, which includes a variety of courses and programs to satisfy the diversity of students; and
4. Eliminate the barriers to continued education such as geography, age level, and the inability of some districts to support necessary programs.
(p. 14)

Additional comments in support of the requirements for increasing state support are found in Millard's (1974b) speech to the National Council of State Directors of Community/Junior Colleges and in the reports of The Carnegie Commission on Higher Education (1973), and the Illinois Community College Board (ICCB, 1974a&b).

Choi (1973) has proposed a total state support model for community college finance saying that the most powerful influence on educational opportunity has been the state's chosen method of support. He said, "The state should support the total educational expense for the public community colleges. Only by doing so, can the variation in financial support for community colleges in a state be reduced to a minimum" (p. 48).

In the case of "state versus student" sharing of financing costs, the tuition level question, the state's primary role in providing access becomes paramount. McMahon (1974) has analyzed the demand by families for higher education and the supply by institutions of this service for the period 1946 to 1968. His analysis by means of his

Restricted Three-Stage Least Squares Estimates of Structural Enrollment Model has lead to the conclusion that

"Finally, it is clear that maintaining low-tuition policies at public institutions makes higher education available to a larger fraction of the population as incomes rise and demands increase" (p. 72).

Pechman's (1970) study in California resulted in a similar conclusion. He believes free or very low tuition is the best way to provide access to higher education for all qualified students. Chambers (1974b) shares this view quoting Pechman: "A system which provides free, or almost free, access to a public institution of higher learning to all qualified students is the simplest and most effective method of insuring enrollment of qualified poor and near-poor students" (p. 9). Lawrence (1974), in summarizing the findings of the National Commission on Financing Postsecondary Education, said, "Increases in the effective price (tuition minus student aid) of postsecondary education -- the price the student must pay -- result in decreases in enrollment: conversely, decreases in the effective price result in increases in enrollment" (p. 26).

Blocker and Bacon (1973) said, "The time has come that community college costs should be met by minimal student tuition and the sharing of the balance by state and federal governments" (p. 13). However, the federal funding emphasis is, for the community colleges, essentially a student-centered program aimed at defraying the present cost to the student (Bender, 1973, p. 18). This leaves the major

community college funding responsibility with the state.

The way a state interprets this responsibility must be expressed in the goals it sets for the education of its citizens, and the degree to which the goals are attainable is directly dependent upon the educational finance policies it follows. H. R. Bowen (1970) related in an address to the 25th National Conference of The American Association for Higher Education (AAHE)

The means used to finance higher education should be determined by what we view as the goals of higher education. ... the finance of higher education should move toward a "full-cost model" in which instruction is free for students and costs are paid through public appropriations and public gifts. (Shulman, 1971, p. 6)

Gleazer (1973) stated the current case for community colleges, their goals, and their financing when he said

The community college, largely dependent upon local tax support in the past, now looks toward the state for the major share of its financial means. What the state is willing to pay for is expected to have a lot to do with the kinds of services offered by the institutions. And there are numerous examples of financial patterns that impede rather than encourage movement toward the generally perceived goals of the community college.... In order to determine suitable means for financial support of community colleges, the states must first ascertain what it is those institutions are to do within their systems of education. (p. 6)

State Support for All Community College Programs

A consensus on the purposes of the community college is well established in the literature of the first five decades of its development. Koos (1970) commented on the remarkable unanimity "found when comparison is made of

formulations by different authorities from different sources" (p. 435). He summarized the four major purposes as (a) preparation for advanced study, (b) vocational education, (c) general education, and (d) community services.

Cosand (1971b) speaking on the challenge of the seventies for the community college, stated that the principle issue to be faced is whether the educational program can and will be developed for the students and citizens which is in balance with the changing demands of society. Referring to comments by Robert Finch, Cosand said, "He stated unequivocally that the community junior college must be broad in concept and must serve all the students, youth and adults, in the community whether their needs are in academic, technical, remedial or continuing education, or in guidance and counseling" (p. 49).

Monroe (1972) stated the objectives of the "community college of tomorrow" to be (a) comprehensive curricula, (b) open-door principle, and (c) community orientation. He itemizes the functions required to meet the objectives as

- (a) the instructional function
- (b) the salvage function
- (c) the screening function
- (d) the custodial function
- (e) the goal-finding and cooling-out function, and
- (f) the cocurricular or student activity function.

To accomplish these functions, programs are needed providing

- (a) transfer curricula
- (b) citizenship and general education
- (c) occupational training
- (d) general studies
- (e) adult and continuing education
- (f) remedial education, and
- (g) counseling and guidance services.

(Monroe, 1972, pp. 32-35.)

Choi (1973) prefaced his proposed formula for full state support of community colleges with the statement

In allocating financial resources to educational institutions by the state government, ultimately two basic factors must be considered: the needs of students, and the educational programs and services to meet these needs. Educational programs are dependent upon the characteristics of the needs of the institution and the needs of the community. Any formula to support public community colleges by the state must reflect these three basic needs: (1) the needs of the student, (2) the needs of the institution, and (3) the needs of the community. (p. 48)

The needs of the community college's diverse student populations and the needs of their communities are too often not reflected in the state's financing policies. Blocker and Bacon (1973) have said

The chief weakness of current patterns of financial support include a lack of realistic funding for non-academic community services, the education and upgrading of professional personnel, and research and evaluation activities. In effect, current funding patterns encourage the status quo and leave little latitude for resource allocation to these three essential activities. (p. 12)

Sharing this opinion, Purdy (1973) calls attention to the research of Lauroesch and others (1971) saying, "The significance of continuing education, community services, and remedial education is denied by fiscal policy" (Purdy, 1973, p. 123). Gleazer (1974a) points out that such practices constitute access barriers. He said, "Some state laws discriminate against vocational students or 'defined adults', or make it difficult at best for the college to open its doors in the evening" (p. 79).

The student-mix profile is changing toward more adult

students and more part-time enrollments in the nation's community colleges. An implication of this trend is that college administrators "will be hard pressed to provide the necessary services, which in many cases require the same amount of administrative resources for processing full-time or part-time students" (Huckfeldt, 1974, p. 31).

Wattenbarger, Holcombe, Myrick and Paulson (1973) argue for increased state support to meet demands for increased services and more comprehensive programs for the diverse range of the "new" student population. A recent national study of adult education financing, including the community college level of education, recommends that "When state legislation dealing with the funding of education is being deliberated, the implications of such legislation for the maintenance and development of the community delivery system for adult education will be considered" (Griffin, Cunningham, Cookson and Washtien, 1974, p.26). Adult education, as used in this study included remedial education, evening and weekend courses for adults, and community or public service programs which were person rather than problem oriented.

In some states, state funding policies are more congruent with the accepted purposes of community colleges and make better provision for all the needed programs. Lombardi, (1973b) quoted the California Code, "Public policy requires community colleges to recognize the need and accept the responsibility for extending the opportunities for community college education to all who may profit therefrom regardless of the economic, social, and educational status" (p. 6).

The Illinois Community College Board (1974b) staff paper on future financing said, "Funding should be provided for all credit and non-credit instructional and community education activities, probably at different amounts ... for different programs" (p. 7).

Two New Dominant Themes

In addition to the six dominant themes previously identified by Arney (1969) and subsequently reaffirmed as currently dominant, two new interrelated themes occurred frequently in the literature. Both accountability in education and the need for development and use of management information systems have emerged as dominant themes within the last five years.

The following paragraphs present a sample of the literature sources establishing the two new dominant themes.

Accountability: Public Demands for Information and Efficiency

The search for revenue that absorbed most of educators' ingenuity and energy during the decade of the 60s is now joined with a new search: "the other side of the balance sheet -- namely, better utilization of resources through improved management and cost effectiveness" (Lombardi, 1973c, p. viii). About 1970, as a result of several impinging developments, a public demand for accountability emerged. Conference papers presented by Glenney, Brason, and Tonsor (C.E.E.B., 1970) stressed the common concern for accountability. Gleazer (1971, p. 12) spoke of the demand, and he said later, "The specificity required with respect to institutional goals is essential ... with regard to another

significant development, the growing demand for accountability ... to those served and to the agencies providing financial support" (Gleazer, 1973, p. 6).

Medsker (1971) said, "The effort to serve new students and render unorthodox educational services requires a continuous consideration of institutional goals and ways of attaining them. And here again we must stress accountability" (p. 148). Similarly, Godwin (Godwin & Mann, 1972, p. 2) refers to three questions of widespread concern; (a) efficiency, (b) cost effectiveness, and (c) productivity; as the public demand for accountability (pp. 165-166).

Cohen (1974) related his impressions of the general attitude of the people's elected representatives by reporting

State legislators want to be able to evaluate whether or not institutions of postsecondary education are economic, efficient, and productive. In particular, they want to be able to determine in some meaningful way whether the cost of supporting education is balanced by a desirable level of benefits and achievements generated by educational institutions for the state's students and general population. (p. 3)

His impressions are shared with Lombardi (1973a) who refers to the 1970s as the "age of accountability" when legislators and taxpayer groups are asking, "How are educators spending our money?" (p. 115). Lombardi (1973b) also has said that

The stress on accountability is partially the result of the questioning attitude of many citizens who believe that the schools are not accomplishing what they claim.... Community colleges are criticized for the lack of formal evaluation of courses or programs, inadequacy of placement and counseling services for occupational students, dearth of descriptive data about the developmental remedial mission, and the high dropout rate among transfer students. (p. 2)

Others presenting observations on accountability in higher education or postsecondary education include Millard (1973, p. 8), Morrow (1973, p. 196), and Martorana (1974b, pp. 1-18).

The importance of the accountability concept is emphasized by its inclusion as one of the objectives recommended in the final report of the National Commission on Financing Postsecondary Education (Lawrence, 1974, p. 24). This objective coincides with a previously recommended objective set forth for the management and financing of colleges by the Research and Policy Committee of the Committee for Economic Development (C.E.D., 1973, p. 21).

State officials recognize accountability as an integral part of state-wide coordination and planning for community colleges (Henderson, 1973; Kastner, 1974, p. 37). Brossman (1974b), in calling attention to the need for more equity and efficiency in the allocation of state funds, said, "Additional aid should also be made available to encourage programs that hold the promise of increased efficiency and effectiveness" (p. 33). The necessity of being accountable at the institutional level and at the state level precipitates another need, management information.

Management Information: Requisite for Accountability

Cohen (1974), reporting on the results of a legislative work conference in the western states, indicated that many legislators are of the opinion that productivity analysis and accountability for activities requires that they have relevant information. Further, many do not believe that state legislatures are receiving sufficient information, and

believe the "information vacuum" is common to all post-secondary institutions. He said specifically

Since legislators often benefit from the use of management tools in other fields, ... they want them for postsecondary education, too. In particular, they favor the development of a methodology for gathering and ordering information relevant to such subjects as enrollment projections, workloads, budgets, productivity, educational quality, and other concerns about performance in postsecondary education. (p. 3)

The call for more and better information about what is taking place in postsecondary institutions is not, however, restricted to the lay public and their elected representatives. Educational leaders recognize that the information systems needed to provide accountability also may have great value for improving management and planning at the institutional, state, and regional levels. Many also believe that improvements in instruction and the management of learning activities are possible. Wellman (1974) recognized the need for management information systems when he said

To be able to properly compare one institution with another will require coordinated data systems not only within a state but throughout the nation. Common data definition, uniform collection procedures, valid analysis, and reliable reports to the public will help the community colleges continue their growth and development; remain accountable to students and the public for effective, efficient, and economical programs; and provide a basis for coordinated services and coordinated financing. (p. 116)

Martorana (1974b), in analyzing the current status of state-level planning for community colleges, made the observation that more attention is being given to the needs for adequate information and data for decision-making and planning.

Millard (1974a) indicated that "Effective pluralism also calls for the development of a common data base and comparability of information where these are possible ... for reasonable decision-making at institutional, ... and state-wide levels" (p. 39). Henderson (1974) related what is taking place in Florida to meet state-level responsibilities when he reported that

Divisional state agency planning and coordination responsibilities are being carried out through the development of an information system compatible with information systems in other divisions, including a cost analysis system and a course numbering system; a program planning and budgeting system for use in each of the individual colleges; a state-wide plan and priorities which will both give direction to, and grow out of, the individual college plans; and a system of output measures which will provide accountability for the decisions reserved to the local colleges.
(p. 103)

Glenny (1974) believes as management and funding issues become more interinstitutional and state-wide, "The use of state-wide data systems, computer simulations, and systematic analyses will increase" (p. 67). Methods such as Program Planning and Budgeting Systems (PPBS) and/or Management By Objectives (MBO) are advocated to meet information and accountability needs by Calais (1973), Andrew and Goettel (1972), Blocker and Bacon (1973), and McMahon (1974, p. 139).

Huckfeldt (1974) forecasts expanding use of the "new" management tools and sees them as an aid to institutional managers. As a result of the national Delphi study he conducted on the changes to come in postsecondary education, he concluded that

As state agencies become a major force in governance changes in education, institutional management will need to learn to live with this force as well as with an increased amount of federal interaction. The new management tools will give some basis for maintaining institutional control by providing the information necessary to communicate to and with federal, state, and faculty forces. There will also be an increasing need to develop and implement standard procedures for reporting and exchanging information. (p. 31)

The institutional needs for use of some vehicle to manage information are further emphasized by the Research and Policy Committee, C.E.D. (1973) who stated, "In order to make and carry out plans, a college needs extensive information such as financial and operating data on all significant phases of operations and costs, including the educational program" (p. 18).

Development of Funding Criteria From The Dominant Themes

The dominant themes identified in the recent literature on community colleges are utilized here to define criteria relating these concepts to state financing of community colleges. The criteria are developed within the following guidelines: (a) only full state support, i.e., no local district funding, is applicable; and (b) only financing of current operations, i.e., no capital outlay funding, is considered.

Criterion 1. The state recognizes the community college as one of the primary delivery systems for providing publicly supported postsecondary education by providing all of the public funds required for current operating expenses.

This criterion is based upon the two themes identified

in the literature relating to the responsibility and role of the state for providing community college education. The public responsibility for providing postsecondary education rests with the state, and to meet this responsibility the state must assume the leading role in providing funds for the operation of community colleges.

Criterion 2. The state recognizes its responsibility for providing equal educational opportunity for all citizens through the community college by requiring an open door policy for admissions and by funding the full cost of all instruction regardless of level.

This criterion is based upon the themes of equal educational opportunity and the state's responsibility to provide support for all program types whether credit is awarded or not. The continuing goal of providing equal educational opportunity requires open access and the funding incentives available through the state to encourage colleges to provide relevant programs of instruction for all ability levels. Providing funding for the full cost of instruction eliminates the access barrier of tuition.

Criterion 3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and responsibility for college operations to local boards of trustees.

The dominant theme of local control to assure maintenance of local community involvement with community colleges and to provide structure for sensing local needs is the basis of this criterion.

Criterion 4. The state recognizes the advantages and benefits of a long-range, coordinated approach to postsecondary education by providing state-wide coordination of a long-range, comprehensive plan for community colleges through a single state agency.

The dominant theme of comprehensive state-wide planning based upon the community college goals and the needs of citizens, communities, and the state is the basis of this criterion. For both efficiency and effectiveness, it behooves the state to charge a single agency with this responsibility.

Criterion 5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges: (a) guidance, counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (e) university parallel education; by distributing state funds on the basis of an objective formula.

This criterion is based upon the dominant themes relating the state's important role in community college finance, its responsibility to support all community college programs, and its overall responsibility for providing equal educational opportunity to all students.

Criterion 6. The state recognizes the public demand for accountability and the need for a unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

The dominant themes; (a) accountability in community college education, and (b) systems to provide more information and better information about inputs, activities, outputs, and resource utilization; are the bases for this criterion.

Summary

Arney (1969) conducted a comprehensive literature search to identify dominant themes relating to financing of the community/junior college. His review of approximately seventy-five literature selections resulted in the identification of seven dominant themes, each of which appeared ten or more times in the literature. From the themes, he formulated seven criteria which he used to test state patterns of support for community colleges.

Adopting Arney's method, approximately one hundred literature selections published between 1970 and 1974 were reviewed either to reaffirm the dominant themes or to discover new or changed themes. Six of the dominant themes relating to financing of community college operations are reaffirmed as dominant: appearing ten or more times in the current literature. Arney's seventh identified theme relating to capital outlay financing was not considered applicable. Two new themes relating to financing current operations of community colleges were identified as dominant. The eight themes gleaned from the current literature are

1. Postsecondary education is a public responsibility.
2. Equal educational opportunity for all citizens should be provided at the community college level of education.

3. Community colleges should be controlled locally to insure sensitivity to local needs.
4. Community college planning and programming should be coordinated by a single state agency according to a long-range, comprehensive, state-wide plan.
5. The state should assume the leading role in financing the community college level of education.
6. The state should provide support for all community college programs including both credit and non-credit courses.
7. The state should provide means for achieving accountability at the community college level of education.
8. The state should provide a unified state-wide information system for improved management and interinstitutional data comparability at the community college level of education.

These dominant themes were utilized to define state funding criteria for community colleges which relate the philosophy and purposes of community colleges to financing policy and practice. The six funding criteria developed from the dominant themes are

1. The state recognizes the community college as one of the primary delivery systems for providing publicly supported postsecondary education by providing all the public funds required for current operating expenses.
2. The state recognizes its responsibility for providing equal educational opportunity for all citizens through the community college by requiring an open door policy for admissions and by funding the full cost of all instruction regardless of level.
3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and the responsibility for college operations to local boards of trustees.

4. The state recognizes the advantages and benefits of a long-range, coordinated approach to post-secondary education by providing state-wide coordination of a long-range, comprehensive plan for community colleges through a single state agency.
5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges: (a) guidance, counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (e) university parallel education; by distributing state funds on the basis of an objective formula.
6. The state recognizes the public demand for accountability and the need for a unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

CHAPTER III

COMMUNITY COLLEGE FUNDING FORMULAS

The data presented in this chapter were collected from the state agency officials responsible for community college affairs in the various states. The data were collected during a two-year cycle using similar instruments (Appendices A and B) in order to assure maximum participation of the 50 states with current data. The 47 states having community college systems provided data. Indiana, New Hampshire, and South Dakota did not.

The state's methods of allocating funds to community colleges are diverse. The funding allocations in each state have evolved over time according to the perceived needs of the state and the circumstances surrounding the conceptualization and development of its community colleges. There are, however, sufficient similarities among groups of states to identify funding allocation patterns which fit four general models of support. The four funding support models are (a) negotiated budget funding, (b) formula unit funding, (c) minimum foundation funding, and (d) cost-based program funding.

A definition for each of the models follows, together with summarizations of the states' funding formulas congruent with each.

Negotiated Budget Funding

State funding for individual colleges which must be either annually or biennially negotiated with a state legislature and/or a state board by college representatives is considered negotiated budget funding. A corollary requirement may be analysis and approval of each individual college's budget either as a single entity, or by line item.

Most of the states using this method have no reported formula for budget preparation or funds allocation. The few that have developed detailed and comprehensive budget preparation procedures are more appropriately classified in the cost-based program funding category. The detailed budget programming becomes the method for allocation, and it is the overshadowing argument in any negotiations.

The states currently using negotiated budget funding are Connecticut, Delaware, Idaho, Kentucky, Louisiana, Maine, Massachusetts, Rhode Island, Utah, Vermont, and Virginia. Colorado's state operated colleges are included, but that state's locally controlled community colleges are in a different category. Other states meeting the requirements negotiated budget funding, but qualifying in another category, are reported in the other categories.

The eight states reporting state-wide average percentages of financial support by source of funds are presented in Table 1. None of the states reported revenue from local district taxes to support operations of their colleges. Support from student fees ranged from 0% to 26%, and the

median percentage was 14%. Support from the state ranged from 64% to 100%, and the median percentage was 81.5%. Though federal funds were highest at 10% for Virginia, the median was only 1.5% for these eight states. Idaho, Maine, Louisiana, and Vermont did not report percentages.

Comparison with the typology of finance models described by the National Educational Finance Project (NEFP) places the states using negotiated budget funding in the full state support model category. Full state support theoretically enables complete equalization of educational opportunity (NEFP, 1971b, p. 50). However, equalization or equitable treatment depends upon how the state faces its responsibility of full support and the method of budget development and negotiation (ICCB, 1974a, p. 23).

A positive attribute of this method is the high degree of accountability that is inherent. On the negative side, a large state staff may be required, and tendency toward state control and pressure to regulate both revenue and expenditures can threaten local decision-making and responsiveness to local needs. Combining full state support and negotiated budgeting encourages state-level decision-making.

Formula Unit Funding

State allocation of funds to colleges on the basis of a simple formula specifying a stated number of dollars per unit of measure, is considered to be formula unit funding. The units of measure in the formula may be units of instruction, enrollment, output, and/or a combination thereof. A minimum local tax effort may or may not be required.

TABLE 1

State-wide Average Percentages of Financial Support
for States Using Negotiated Budget Funding in 1973-74

State	Funding Sources			
	Fees %	State %	Federal %	Other %
Colorado ^a	0	100	0	0
Connecticut	0	99	1	0
Delaware	0	99	1	0
Kentucky	26	64	7	3
Massachusetts	20	80	0	0
Rhode Island	14	79	2	5
Utah ^b	14	83	1	2
Virginia	17	72	10	1

Notes. All states reported zero percentage from local taxes.

^aOnly the state controlled (and operated) colleges are included.

^bThe percentages are rounded to the nearest whole number.

Formula unit funding is most analogous to the flat grant method (NEFP, 1971b, p. 44). A state grant of funds is based on some measure of the number of students receiving instruction and other services. The grant is computed at a single funding rate in the simplest case. In cases where attempts have been made to adjust the formula to meet differences in needs, multiple funding rates differentiated

according to level of instruction, type of college, numbers of students enrolled, and/or type of instructional program may become part of the grant computation.

Both minimum foundation funding and cost-based program funding may be considered as advanced developments of formula unit funding. Minimum foundation funding represents a refinement in the direction of guaranteeing an acceptable level of support for enhancing equality of educational opportunity where both state and local taxes are funding sources. Cost-based program funding represents a refinement in the direction of funding based upon actual costs for operations either by operational function or by specified instructional discipline categories.

Since it is a flat grant method, formula unit funding does not vary with respect to the local taxpaying ability of the district. A minimum local tax levy may be required for eligibility to receive the state grant, but the rate amount for the grant is uniform state-wide. The grant may, however, have a maximum limit, a ceiling on the total funds allocated to a college, stated in terms of a percentage of college operating expenses.

The states currently using formula unit funding, but setting maximum percentages of state support for a college's current operations, are Maryland, Missouri, New Jersey, and New York. Oklahoma's locally controlled colleges and Wisconsin's colleges have their maximum percentages of state support established in different ways than the other states' colleges. How the percentage ceilings are applied in each

of these states may be explained best in the following descriptions of the formulas.

Maryland. State funds are allocated to the state colleges in service districts having a population of 50,000 or more at a dollar per full time equivalent (\$/FTE) student rate that equates to 50% of college operating expenses, but the \$/FTE student rate may not exceed a maximum rate established by the state. Allocations to regional colleges and colleges with less than 500 full time equivalent (FTE) students in a district of less than 50,000 population are made at a \$/FTE student rate that equates to 55% of the college operating expenses, providing the maximum stated \$/FTE student rate is not exceeded. The maximum rate for the "regional" colleges and colleges of less than 500 FTE in service districts of less than 50,000 population is 57% higher than the maximum rate for the other state community colleges.

Missouri. The state allocates funds either at 50% of actual college operating expenses, or at a set \$/FTE student maximum rate, whichever is the lesser. However, there is a minimum \$/FTE student rate at which funds are allocated if 50% of expenses should not equate to at least the minimum rate. The minimum and maximum rates are boundaries within which the 50% of expenses function is used to allocate funds.

New Jersey. State funds are allocated for 50% of college operating expenses if the allocation does not exceed an amount which equates to the state established maximum \$/FTE student rate.

New York. State funds are allocated to two classifications of colleges at differing \$/FTE student rates depending upon college designation as a Full Opportunity Plan (FOP) College or not. Colleges that are not FOP colleges receive an allocation either computed at a \$/FTE student rate, or equal to 33.33% of the net operating budget, or equal to 33.33% of the actual operations expenditures, whichever is lesser. The FOP colleges receive an allocation either computed at a \$/FTE student rate, or equal to 40% of the net operating budget, or equal to 40% of the actual operations expenditures, whichever is lesser. The state allocation to either type college may be enriched by additional state funds computed at specified \$/FTE student rates when a college meets these minimum qualifying conditions:

1. The students to teacher ratio is equal to or greater than a state prescribed minimum.
2. The cost of instruction is 50% or more of the budget for operating expenses when rent for facilities is excluded.
3. The full-time students in Associate in Applied Science programs is equal to 50% or more of the total full-time students.
4. The local funding is at least equal to a 0.5-mill tax levy on district taxable real property.
5. The percentage of full-time disadvantaged students in the study body is equal to or greater than the percentage of the district population that is disadvantaged.

The basic allocation rate and the rates for the additional enrichment funding are approximately 20% higher for FOP colleges than for the other colleges.

Oklahoma. For the locally controlled and operated community colleges, the state allocates funds at a \$/FTE student rate computed from the current state allocation rate for the state two-year colleges. The state allocation rate for locally controlled colleges is 75% of the rate set for the state colleges.

Wisconsin. The state allocates funds at a \$/FTE student rate determined by computing the state-wide operating expenses per FTE student and multiplying by 55%. This allocation rate is used for funding collegiate transfer, associate degree, and vocational diploma programs. Vocational adult programs are funded at 50% of the \$/FTE student rate established for the other three programs. There is an additional categorical limit placed on administrative expenses that is set at 11% of the total annual college district cost for instruction. If the administrative expenses exceed 11% of the instructional costs, state aid is deducted from the administrative expenses over the 11% limit.

The other states using formula unit funding follow: Alabama, Alaska, Colorado (locally controlled colleges), Iowa, Kansas, Mississippi, North Dakota, Ohio, Oregon, and Pennsylvania. Each of these states, with the exceptions of Alaska and Kansas, allocate funds to their colleges at one or more \$/FTE student rates. Both Alaska and Kansas allocate their funds at a single \$/credit hour rate. Alabama and Mississippi use a college site funding grant which is the same amount for each of the colleges, and they add their \$/FTE funding to it. Table 2 presents the funding parameters currently being used.

TABLE 2

Formula Unit Funding Parameters Used by Selected States

State	Allocation Variable	Funding Rate Unit		
		$\frac{\$}{\text{CR.HR.}}$	$\frac{\$}{\text{FTE}}$	$\frac{\$}{\text{College}}$
Alabama	N/A Number Enrolled		X	X
Alaska	N/A	X		
Colorado ^a	Transfer Enrollment Vocational Enrollment		X X	
Iowa ^b	N/A		X	
Kansas	N/A	X		
Mississippi ^b	Transfer Enrollment Vocational Enrollment		X X	X X
North Dakota	Local Tax < 8 mills Local Tax ≥ 8 mills		X X	
Ohio	Transfer Enrollment Vocational Enrollment		X X	
Oregon ^b	Enrollment ≤ 500 FTE 500 FTE < Enrollment ≤ 900 FTE Enrollment > 900 FTE		X X X	
Pennsylvania	N/A		X	

Notes. An X indicates the funding rate unit is used in conjunction with the allocation variable listed. N/A means an allocation variable is not applicable.

^aOnly the locally controlled and operated colleges are included.

^bFunding only applies for state resident students.

As may be observed from Table 2, the funding rates vary in number from one to three, and in the states where multiple rates are used, some rate decision parameter (Allocation Variable) is specified for use in calculating the total funding allocations.

In the states where the \$/FTE student rate is dependent upon a curricular program rate parameter, the vocational education program FTE student rate is usually higher than the academic transfer (or general education) program FTE student rate. From the formula unit funding states currently following this practice, two examples of this enriched funding per FTE are found in Colorado and Ohio. Colorado funds the vocational education programs at a rate 83% higher than the non-vocational education programs. In Ohio, the vocational-technical education funding rate is 69% higher than the rate for general educational studies.

Oregon differentiates formula unit funding rates according to the number of FTE students enrolled. The funding rates are set for three levels or steps which in effect provides different levels of funding for colleges of different sizes. The first 500 FTE students are funded at a rate 34% higher than the \$/FTE rate for enrollment over 900 FTE. The FTE student enrollment in excess of 500 FTE, but less than 901 FTE is funded at a rate approximately 10% higher than the rate for enrollment over 900 FTE students.

The state-wide average percentages of financial support for the states using formula unit funding during 1973-74

may be found in Table 3. One state, North Dakota, did not provide these data and is excluded.

TABLE 3

State-wide Average Percentages of Financial Support
for States Using Formula Unit Funding in 1973-74

State	Funding Sources				
	Fees %	State %	Federal %	Local %	Other %
Alabama	8	82	10	0	0
Alaska	29	71	0	0	0
Colorado ^a	22	30	1	47	0
Iowa	23	41	19	13	4
Kansas	20	38	2	40	0
Maryland	23	39	4	30	4
Mississippi	14	52	12	20	2
Missouri	24	34	6	32	4
New Jersey	27	38	3	32	0
New York	18	35	4	43	0
Ohio	22	38	2	37	1
Oklahoma ^a	29	42	1	21	7
Oregon ^b	22	44	2	32	0
Pennsylvania	33	33	1	33	0
Wisconsin	8	35	10	47	0

Notes. Some percentages are rounded to the nearest whole number.

^aOnly the locally controlled and operated colleges are included.

^bOregon's reported percentages are for 1972-73.

The median percentages of financial support for the four major funding sources give the most representative pattern of support among the states using formula unit funding. The median percentages are (a) 22% for student fees, (b) 38% for the state, (c) 3% for federal funds, and (d) 32% for local taxes.

Since formula unit funding is essentially the flat grant method, equalization of educational opportunity for all students in a state is virtually impossible (NEFP, 1971b, p. 46). It should be pointed out, however, that as the percentage of state financing increases and the percentage of local financing decreases, the level of equalization becomes higher. In the case where local support becomes zero, as with Alabama and Alaska, the funding method becomes the full state support method (NEFP, 1971b, p. 50), and equalization may be achieved if student fees are uniform state-wide.

The most positive aspect of this financing method is local control of budget decisions and expenditures. On the negative side, formula unit funding neither relates directly to college responsiveness to local needs, nor provides incentives for improvement in programs and services, or efficiency. Also, accountability provisions are absent: funding is not related directly to expenditures or costs other than through set ceilings on state support. Providing program direction through funding incentives is possible, as with New York, but only if special funding rate categories are established in conjunction with qualifying criteria for eligibility.

This path leads to cost-based program funding when followed at length.

Minimum Foundation Funding

State funding for individual college districts computed at a variable rate dependent upon the amount of local tax funding available at a prescribed minimum millage levy, and/or providing a state guaranteed minimum level of support per student measure, is considered to be minimum foundation funding. The state guaranteed minimum level of support per student measure must include both state and local funds. The variable rate allocation of state funds may be expressed as either a set \$/student measure amount minus the required local millage levy funds, or the approved district budget minus the amount produced by the required minimum local tax levy.

Minimum foundation funding is also referred to as equalization funding. It is a method with variations in form of the Strayer-Haig formula (NEFP, 1971b, p. 46). Equalization is best achieved where there is no local college district leeway to assess a higher tax levy than the required minimum millage, and the student fees are uniform state-wide. If the millage and student fees are constants, both the local funds contribution and the state allocation are functions of the wealth of each college district. Local funding varies directly with the value of taxable property, and state funding varies inversely with the property value. The question arises: should community college funding be purely a function of district wealth, either directly or inversely?

The states using minimum foundation funding are Arizona, California, Illinois, Michigan, Montana, Nebraska, New Mexico, Wyoming. Two of the states, Montana and Nebraska, express their formulas for state funding allocations as the state-approved college budget amount minus a prescribed local millage levy and minus student fees. Montana requires a three-mill deduction and Nebraska requires a one-mill deduction. New Mexico uses a similar method: approved budget, minus student fees, minus the local funding. But, New Mexico has a statutory guarantee of a specified \$/FTE student funding level when state and local funding is combined. New Mexico did not provide data on local millage. The method used for minimum foundation funding in each of the remaining five states is described in the following paragraphs.

Arizona. The allocation of state funds is either computed at set \$/FTE student rates, or is a lesser amount sufficient to allow the local tax levy to be reduced to five mills. The \$/FTE student rates vary according to two specified parameters: (a) enrollment level either greater or less than 1000 FTE students, and (b) enrollment in either nonvocational or vocational programs. State funding is approximately 54% higher for the first 1000 FTE students than for the FTE over 1000. It is 40% higher for vocational FTE than for nonvocational FTE regardless of total enrollment level. Arizona's method is equivalent to computing the state funding allocation after a five-mill local tax levy is deducted from the budget of each college.

California. The average daily attendance (ADA) is used as the student measure for funding. The state's share of college operating expenses is computed in two parts: one \$/ADA rate is used for students other than defined adults, and a lower \$/ADA rate is used for defined adults. Defined adults are those students over 21 years old who are enrolled in fewer than 10 class hours per week. Each part of the allocation computation is an amount that equates to the \$/ADA rate minus the amount produced by a specified minimum local tax levy. The specified millage deduction from the defined adult part is 2.4 mills, and the deduction from the other part is 3.9 mills. The ADA rate for devined adults is 54.5% of the ADA rate for students other than defined adults.

Illinois. The allocation of state funds is computed at set \$/FTE student rates, but there is a provision for equalization grants that guarantees a \$/FTE student foundation level when state and local funding is combined. The regular \$/FTE funding rates are in two classifications: one rate is used for nonvocational and business students, and a higher rate is used for nonbusiness vocational students. The equalization grant is the variable amount required to bring \$/FTE student funding up to the foundation level when the regular state funding rates plus local funds from specified minimum tuition and from the local tax levy do not suffice. The required minimum tax effort to qualify the equalization is 17.45 mills. The regular funding rate for nonbusiness vocational FTE is 25% higher than the rate for business and nonvocational FTE. In other words, business FTE aren't funded as

vocational FTE. Illinois also makes special purpose grants available to the colleges for public service and disadvantaged students projects.

Michigan. The state allocates funds to the colleges at \$/FTE student rates which are dependent upon both the type of college and the type curricular program enrollment. The net state allocation is computed from (a) enrollments in three categories of programs, (b) an added funding adjustment factor, (c) a deduction of tuition and fees, and (d) a deduction of the lesser amount generated when either a one-mill levy is multiplied times the equalized district property valuation, or the total FTE enrollment of the college is multiplied times a set \$/FTE rate. The allocation rates for colleges of greater than 1,500 FTE students and operated by public school districts are, when compared with the rates for all other colleges, (a) 12.65% less for liberal arts, business and commerce programs, (b) 9.05% less for vocational-technical programs, and (c) 0.22% more for health-related programs. The allocation rates for vocational-technical programs, when compared with the liberal arts rates at each college, are 54.5% higher for the public school district colleges over 1500 FTE, and are 40% higher for the other colleges. The allocation rates for health-related programs, when compared with the respective liberal arts rates, are 100% higher for the public school district colleges over 1500 FTE, and are 74.4% higher for the other colleges.

Wyoming. The state requires a minimum local college

district funding effort per FTE student which is equal to the sum of a set \$/FTE student rate, representing tuition, plus an amount equated to a four-mill levy on local taxable property. The local funding combined with the state allocation must equate to at least the statutory minimum foundation \$/FTE student funding rates. The required foundation funding rates vary according to two rate decision parameters: (a) the FTE enrollment level of each college; and (b) the FTE enrollment in each of two curricular program categories, academic and vocational. The enrollment levels at which the foundation funding rates change are 500 FTE and 1500 FTE students. The \$/FTE foundation rate for vocational students is 50% higher than the rate for academic students both in colleges of less than 500 FTE students and in colleges with greater than 500 FTE, but less than 1500 FTE. The \$/FTE rate for vocational students is 57.5% higher than the rate for academic FTE in colleges with more than 1500 FTE. The guaranteed foundation funding for colleges of less than 500 FTE students is from 11.7% to 17.3% higher than for colleges with more than 1500 FTE: the percentage depending upon the academic/vocational student mix. The foundation funding rates for colleges with more than 500 FTE, but less than 1500 FTE, are from 5.6% to 11.1% higher than for colleges with more than 1500 FTE: again depending upon the student mix.

The state-wide average percentages of financial support by source of funds for the states using minimum foundation funding are presented in Table 4.

TABLE 4

State-wide Average Percentages of Financial Support
for States Using Minimum Foundation Funding in 1973-74

State	Funding Sources				
	State %	Local %	Fees %	Federal %	Other %
Arizona	37	47	(Combined = 7)		9
California	42	52	0	6	0
Illinois	40	40	17	2	1
Michigan ^a	46	30	22	2	0
Montana	50	25	15	10	0
Nebraska ^b	(58-62)	(13-18)	(12-17)	3	0
New Mexico	47	14	32	7	0
Wyoming	46	31	9	2	12

Notes. ^aPercentages are rounded to the nearest whole number.

^bNebraska submitted a percentage range for three of the sources, and there were insufficient data to convert to a state-wide average.

The median percentages of financial support among the states using minimum foundation funding are (a) 46% from state sources, (b) 30.5% from local sources, (c) 15% from student fees, and (d) 4% from federal sources.

Minimum foundation funding of community colleges is an extension of the foundation approach to financing the public schools, kindergarten through high school. A major

difficiency of this method for financing colleges is the impact of student tuition and fees on equalization of expenditures per FTE. Only in the case where student fees were either zero or uniform state-wide, and assessment of property valuation was uniform state-wide, would equalization be approached.

It is commonly recognized that property valuation practices vary widely from district to district, and this negates the principle of equalization of effort as a function of district wealth or "local ability to pay." The traditional foundation approach also disregards recognized factors such as geography and college size which affect directly the differences in financial support needs (ICCB, 1974a, p. 18).

Though minimum foundation funding provides for local board control of expenditures, it could be viewed as a necessity due to the relatively high local tax funds used. The method does not intrinsically provide any apparent incentive for promoting efficiency or improving accountability. Outputs are not related to expenditures or costs of programs and services.

Cost-Based Program Funding

The allocation of state funds on the basis of multiple cost centers, detailed instructional discipline categories, program function, and/or budgeted object of expenditure is considered to be cost-based program funding. Cost studies at either the state level, or the college level, or both levels, may be an integral part of the funding process or an implied separate activity. These concepts are implicit in the funding

method, (a) funding related to actual costs, and (b) costs varying due to program and other institutional factors.

Cost-based program funding is analogous to one or the other of two common finance models, depending upon whether local tax funds are used or not. Ten of the thirteen states using this method have no local tax funding. The ten fit the full state support model (NEFP, 1971b, p. 50). Three of the states have a small percentage of total support which is from local taxes, and these fit the flat grant model (NEFP, 1971b, p. 44). The local funding is not tied directly to the state funding procedures in these states: it is either for special purposes, or a carryover of past practices to allow funding enrichment from local sources.

The average percentages of financial support by source of funds for the states using cost-based program funding are presented in Table 5. From the data, the median percentages of support by source are (a) 71% state, (b) 16% fees, (c) 4% federal, and (c) 0% local.

The following paragraphs describe each of the thirteen states' funding methods, not from the point of view of procedural detail, but with respect to types of funding rates and where they are applied to programs and/or operational functions. The object is to present a narrative picture of the decision points where allocation variables occur in the funding methods.

Arkansas. The funding allocation for instruction is calculated at a \$/faculty position salary rate for each of 19

TABLE 5

State-wide Average Percentages of Financial Support
for States Using Cost-based Program Funding in 1973-74

State	Funding Sources				
	State %	Local %	Fees %	Federal %	Other %
Arkansas	75	0	16	3	6
Florida	70	0	21	6	3
Georgia	75	0	25	0	0
Hawaii	83	0	0	13	4
Minnesota	70	0	30	0	0
Nevada	87	0	13	0	0
N. Carolina	77	12	7	4	0
Oklahoma ^a	71	0	21	0	7
S. Carolina	67	10	9	14	0
Tennessee	71	0	14	5	10
Texas	56	20	17	4	3
Washington	77	0	11	9	3
W. Virginia ^b	64	0	27	(Combined = 9)	

Notes. Some percentages are rounded to the nearest whole number.

^aOnly the state two-year colleges are included.

^bThe percentages are for 1972-73.

Higher Education General Information System (HEGIS) instructional disciplines: 14 academic, four occupational, and one developmental. Instructional supplies, expenses, and replacement equipment are also funded at a \$/faculty position rate for each of the HEGIS categories. The funding rates apply to both credit and noncredit instruction. Counselor positions are funded at a \$/position salary rate. Building maintenance and repair allocations and custodial care allocations are computed according to a set of \$/square foot rates that are arrayed by (a) building use, (b) type construction, and (c) air conditioned status. All other funded budget items are nonformula items based upon past experience and justification to meet estimated needs. These items are (a) general administration and student services, (b) general institutional expenses, (c) community services, (d) library, (e) operation of physical plant, and (f) other educational and general expenditures.

Florida. The allocation for all programs and functions is provided through \$/FTE student funding rates established annually for 34 instructional disciplines; 23 HEGIS academic, seven occupational, two developmental, and two community instructional services. An annual cost analysis by each college folds all indirect costs for administration, library, student services, academic support, physical plant and other services into a cost per credit hour of instruction. This is added to the direct cost per credit hour for instruction in the 34 discipline categories. Funding computations are

based on the \$/FTE state-wide average cost in colleges of less than 1300 FTE students and in colleges of greater than 1300 FTE. Adjustments to the actual state-wide costs are made by the state to determine the budget year funding rates. The adjustment factors are for (a) change in cost-of-living, (b) equipment amortization, (c) student fees received, and (d) federal revenues.

Georgia. Funding for professional instructional and research faculty positions is allocated at a uniform \$/faculty position rate. Clerical and technical support staff positions are funded at a \$/staff position rate, and operating expenses for the instruction and research function are funded at a \$/faculty position rate. The extension and public service function is funded at a \$/continuing education unit (\$/CEU) rate. The functions of general administration, institutional services, and student services are funded in a lump sum amount equated to a percentage of the combined allocations for (a) instruction and research, and (b) extension and public service. Library services are also funded at a percentage of the combined allocations for (a) and (b). The remaining functions of physical plant operation and maintenance are funded at a \$/square foot rate. The state staff performs an annual state-wide cost analysis to provide a basis for rate change recommendations.

Hawaii. Support for instruction in the category of liberal arts is differentiated geographically between the island of Oahu and the neighbor islands. The neighbor

islands' funding rate for liberal arts is 22.8% more than the rate for Oahu. The instruction program is funded at \$/credit hour rates in two categories: liberal arts and vocational education. The four programs other than instruction are funded at four separate \$/student head count rates. The four programs are (a) instructional support, (b) student services, (c) academic support, and (d) public service.

Minnesota. The allocation for personnel is on the basis of programs and is computed at \$/position rates for both professional positions and for nonprofessional positions. All other budget items have specified rates for funds allocations on the basis of object of expenditure. The rates are \$/college for such items as educational supplies, advertising, cooperative education, communications, and travel. Custodial, maintenance of plant, and utilities are funded at separate \$/square foot rates. Other allocation rates used are \$/FTE student, \$/student head count, and \$/man-hour of services. Administrative and instructional computer services and high school student testing for admissions are paid directly from state board accounts: not funded through the colleges. Some items such as equipment and film rentals, plant management services, garbage and snow removal, and refunds are funded according to previous experience and justified need.

Nevada. Allocation of funds for instruction is on the basis of a \$/faculty position rate, and instructional support expenses are funded at a separate \$/faculty position rate. Instructional support includes (a) nonprofessional staff,

(b) operations materials and supplies, (c) instructional equipment, and (d) in-state travel. Administration and general expenses functions, and out-of-state travel are each funded at a different \$/faculty position rate. Student services includes admissions, student records, and other student affairs functions. The student services function is funded at a \$/FTE student rate. Operation and maintenance of physical plant is funded at a \$/square foot rate for buildings and a \$/acre rate for grounds maintenance. The function of library services is funded according to the state of Washington library formula (see Washington).

North Carolina. The funding allocation for instruction is calculated at a \$/instructional unit rate. The instructional unit represents a teaching position and is used also to compute two types of student measures: budget FTE and "students in membership." The instructional budget FTE and "students in membership" are divided into three categories: (a) technical, (b) vocational, and (c) all other than technical or vocational. The fractional multipliers used to compute "students in membership" for the technical and vocational categories result in 20% more funding for technical and 50% more funding for vocational categories where the \$/"student in membership" rates apply. The functional area of general administration is funded according to line item object of expenditure, and by multiple \$/"student in membership" rates. Some items under general administration are funded at either \$/position rates or \$/college rates. All college staffing other than the staffing for professional

teaching positions, is computed from a detailed staffing rate schedule giving number of positions per budget FTE count for all types of administrative and support positions. Funding for staff other than instructional positions is at specified \$/staff position rates. Funding for all other functions is by either \$/college, or \$/position, or \$/"student in membership" rates established for each line item object of expenditure. State funding for maintenance is applicable only to furniture and equipment provided by the state, and state funding for fixed charges and personnel benefits is only applicable to personnel positions paid with state funds. The local funds provided through local taxation must provide for these expenses: (a) bonding of college employees, (b) auditing local funds, (c) millage and bond elections, (d) legal fees for operations and administration, (e) the wages, supplies, and utilities for operation and maintenance of the physical plant, (f) the rental of land, buildings and equipment, (g) insurance on the physical plant, and (h) the fixed charges, insurance, and personnel benefits for personnel paid with local funds.

Oklahoma. The allocation is based on operational functions of a college. The funding for instruction is calculated at a \$/faculty position rate representing an average annual salary. A percentage of the total amount for salaries is used as the funding basis for instructional support expenses: approximately 33% of salaries. The remaining functions are funded at a percentage of the combined amounts

for instructional salaries and instructional support as follows: (a) 7% for general administration, (b) 7% for general institutional expenses, (c) 7% for library services, (d) approximately 5% -- varies among colleges -- for organized activities related to instruction, (e) 2% for organized research, (f) 2% for extension and public service programs, and (g) 14% for operation and maintenance of the physical plant. Though no differentiation is made in the instructional salary funding rate, the method of computing instructional positions from FTE enrollments in technical versus academic programs provides for enriched funding of technical programs. It takes 2.33 times as many academic FTE to produce a teaching position, and this equates to 133% more funding per FTE student for technical programs. College revolving funds revenues are deducted from the calculated gross allocation to determine the net allocation.

South Carolina. The allocation for all programs and functions is provided through \$/FTE student rates established annually in the HEGIS categories for instruction. The total cost for instruction -- both direct and indirect costs -- is determined annually through a cost analysis performed by each college and submitted to the state. Funding computations are based on the \$/FTE state-wide average cost in three sizes of colleges: (a) colleges with less than 1250 FTE, (b) colleges with more than 1250 FTE, but less than 2500 FTE, and (c) colleges with more than 2500 FTE. The \$/FTE funding rates are established according to the cost ratios between instructional disciplines. Adjustments are made to actual state-wide

costs to determine the budget-year funding rates. The adjustment factors are (a) change in cost-of-living, (b) equipment amortization, and (c) revenues from fees, local taxes, and federal grants.

Tennessee. Funding for instruction and research is provided according to a schedule of \$/credit hour rates which are differentiated by level of instruction into 30 HEGIS discipline categories; 24 academic and six technical. The library services function is funded at a \$/credit hour rate plus a \$/volume acquisition rate to make up numerical deficiencies in the library collection. The student services function is funded at a \$/student head count rate. Operation and maintenance of the physical plant is funded at a \$/square foot rate. The functions of general administration and general institutional support are funded at a flat \$/college rate plus a percentage of the unrestricted educational, general, and student aid funds allocated to each institution. A percentage adjustment for inflation is made on each funding cycle for the functions: (a) instruction and research, (b) library services, (c) student services, and (d) operation and maintenance of plant. Nonformula items funded on the basis of needs justification are (a) organized educational activities (farms, dairies, nurseries), (b) extension and public service, (c) staff benefits, (d) remedial education programs, and (e) separately budgeted research.

Texas. The allocation for all college programs and functions is provided through \$/contact hour rates for instruction

in 18 HEGIS academic and 27 occupational categories. The state board staff conducts periodic cost studies for analysis of formula funding rates. A student placement/follow-up and supply/demand information system is funded under vocational-technical education at the state agency level: not a college allocation, but provides for a college function.

Washington. The allocation is computed according to several rates and percentages of funding categories as specified in a detailed budget model. Funding for the instruction function is at a single \$/faculty position rate for seven academic and seven vocational program classification. Differentiation of funding for the 14 instructional classifications is achieved through state specified staffing ratios -- FTE students per position -- for each classification. Instructional support staff are funded at a set of \$/FTE student rates for the 14 classifications of courses, the highest rate -- for health subjects -- being approximately 4.8 times the lowest rate, that for education courses. Instructional support operations are funded at another set of \$/FTE student rates for the 14 classifications. All other administrative, library, counselor, and support staff for a college are funded at \$/position rates set in each of the remaining four program functions: (a) library and learning resources, (b) student services, (c) administration and general expenses, and (d) plant operation and maintenance. The positions in the library program are computed as functions of FTE students enrolled, volumes cataloged, and number of faculty positions. Student

services program positions are set at ten plus additional positions computed as a function of annual student head count. General administration positions are four plus those additional positions generated as a function of FTE students enrolled. Support staff positions in the general administration program are computed as functions of (a) number of faculty positions, (b) annual student head count, and/or (c) combined faculty and other staff positions. The plant operations and maintenance positions are computed as a function of man-years of service in the categories: (a) maintenance, (b) fire and safety, (c) police, and (d) janitorial. Utilities are funded at a \$/square foot rate plus a percentage increase based on changes in costs and utilities maintenance. In each of the four programs other than instruction, the operations support expenses are funded at a percentage of the salaries amount in each program. Faculty and staff benefits are funded in all five program functions at a percentage of the salaries amount in each respective program area. The cost of trucking--in the plant operation and maintenance program--is computed for funding as a percentage of the operations support cost for all five program functions. The funding for administration of plant operation and maintenance is set at a percentage of the combined cost of trucking and position salaries in plant operation and maintenance.

West Virginia. The formula portion of the funding allocation is only for professional and nonprofessional salaries in three functional categories: (a) instruction and research, (b) library services, and (c) administration and

institutional support services. Funding for instruction and research professional positions is at a single \$/position rate, and the nonprofessional support positions in this category are at another single \$/position rate. One nonprofessional position is authorized for each six professional instruction and research positions. Differentiation of funding in instruction and research is achieved through use of four FTE students per faculty position ratios: (a) foundation level at 17 FTE per faculty position, (b) undergraduate lower-level health professions, health services and paramedical technologies at 12 FTE per faculty position, (c) undergraduate lower-level engineering, and mechanical and engineering technologies at 15 FTE per faculty position, and (d) all other undergraduate lower-level instruction at 23 FTE per faculty position. Administration and institutional support is funded at either five professional positions or a set percentage of the instruction and research salaries amount, whichever is the larger. Funding for library professional positions is either three positions or one position per 450 FTE students, whichever is the larger. Library professional positions are funded at a single \$/position rate, and library nonprofessional support positions are funded at another single \$/position rate. Nonprofessional library positions are set at either six, or two per professional library position, whichever is the larger. The remainder of the state allocation is "non-formula" and depends upon justification of needs.

Table 6 is a summary of the college operational or

program functions that repeatedly occur as individually funded categories in the states' allocation formulas. There appears to be a high degree of consensus on the location of cost centers as points of funding differentiation in ten of the states. The other three -- Florida, South Carolina, and Texas -- fold all operating expenses funding into the \$/FTE student or \$/contact hour allocations for their instructional discipline categories.

The most common differentiation in funding for instructional programs is made between academic transfer courses and vocational/technical courses. The use of instructional discipline categories as cost centers is evident both in the states that fund according to course or student measures, and in the states that fund according to instructional positions. The frequency of use of instructional categories in determining funding allocations is (a) ten of the thirteen states use two or more instructional categories, and (b) six of the ten states use detailed discipline categories ranging in number from fourteen to forty-five.

Table 7 illustrates the frequency of use of the different types of allocation rates. The number of states using a particular type of funding rate for allocations in the program function categories is given. One purpose of Table 7 is to allow a comparison with Table 6 and show the similarities and dissimilarities in allocation practices among the states using cost-based program funding.

TABLE 6

College Program Functions Identified as
Funding Parameters in Selected States

State	Program Funding					Plant Oper. & Maint.
	Instruction & Research	Extension & Public Service	Library & Learning Resources	Student Services	Admin. & Gen. College Support	
Arkansas	X	Neg.	Neg.	X	Neg.	X
Florida ^a	X	X				
Georgia	X	X	X	X	X	X
Hawaii	X	X	X ^b	X	X	
Minnesota	X		X	X	X	X
Nevada	X		X	X	X	X
North Carolina	X	X	X	X	X	No ^c
Oklahoma	X	X	X		X	X
South Carolina ^a	X					
Tennessee	X	Neg.	X	X	X	X
Texas ^a	X					

TABLE 6 - continued

State	Instruction & Research	Extension & Public Service	Library & Learning Resources	Student Services	Admin. & Gen. College Support	Plant Oper. & Maint.
Washington	X		X	X	X	X
West Virginia	X		X	Neg.	X	Neg.

Notes. An X indicates funding rates or percentage amounts are used to fund the function, and an entry of "Neg." means the funding is negotiated for that function.

^aFunding for all other functions is included in the funding rates for instruction.

^bLibrary and Learning resources are called academic support.

^cThis function must be financed from local funding sources.

TABLE 7

Frequency of Use of Allocation Rate Parameters
In Cost-based Program Funding

Funding Rates	Number of States Funding the Program Function					
	Instruction & Research	Extension & Public Service	Library & Learning Resources	Student Services	Admin. & Gen. College Support	Plant Oper. & Maint.
\$/Prof. Positions	8	1	4	3	4	3
\$/Staff Positions	4		5	3	4	3
\$/Capita Student		1	1	3	2	
\$/FTE Student	5	2		1	1	
% Salaries	1		2	1	1	
% Salaries & Operations		1	2	1	4	1
\$/College	1	1			3	
\$/Credit Hour	2		1			
\$/Contact Hr. or CEU	1	1				

Number of States Funding the Program Function

Funding Rates	Instruction & Research	Extension & Public Service	Library & Learning Resources	Student Services	Admin. & Gen. College Support	Plant Oper. & Maint.
\$/Book Replaced			1			1
% Replacement Cost			2			
% Operations Expend.						1
\$/Square Foot or Acre						6
\$/Man-Hr. or Man-Yr.						2

Note. The numerical entries do not indicate an unduplicated count of the states in a vertical direction. For example, a state may use more than one type of funding rate in its allocation for the instruction and research function.

Cost-based program funding has high potential for equal opportunity provisions when costs are accurately assessed on a state-wide basis and are fully funded. Fair treatment and equitability may be enhanced for the student, the tax-paying public, and the colleges. Accountability is a built-in feature of this method when cost analyses are an integral part of the process.

State-level incentives to improve programs and services are possible through this method, though they are not always present. State-level incentives to promote efficiency of local college operations may be included, but there is a danger that funding based on state-wide average costs could discourage efficiency; lower costs result in lower funding levels (ICCB, 1974a, Pt. I, p. 21).

Responsiveness to local needs and local control of decisions, with respect to program direction and budget, could fall prey to state-level intervention. Safeguards guaranteeing local inputs and control must be built into the procedures in order to avoid this situation.

Summary

The funding formulas for allocating state appropriations to community colleges in 47 states were described in this chapter. The state formulas were divided into four groups according to the type funding support model most congruent with each state's funding method. The four-model typology used to categorize the formulas is described as follows

1. Negotiated budget funding: state funding for individual colleges which must be either annually or biennially negotiated with a state legislature and/or a state board by college representatives. A corollary requirement may be analysis and approval of each college's budget either as a single entity or by line item.

2. Formula unit funding: state allocation of funds to colleges on the basis of a simple formula specifying a stated number of dollars per unit of measure. The units of measure may be units of instruction, enrollment, output, and/or a combination of these. A minimum local tax effort may or may not be required.

3. Minimum foundation funding: state funding for college districts which is computed at a variable rate dependent upon the amount of local tax funding available at a prescribed minimum millage levy, and/or providing a state guaranteed minimum level of support per student measure. The state guaranteed minimum level of support per student measure must include both state and local funds. The variable rate allocation of state funds may be expressed as either a set \$/student measure amount minus the required local millage levy funds, or the approved district budget minus the amount produced by the required minimum local tax levy.

4. Cost-based program funding: allocation of state funds on the basis of multiple cost centers, detailed instructional discipline categories, program function, and/or budgeted object of expenditure. Cost studies at either the

state level, or the college level, or both levels, may be an integral part of the funding process or an implied separate activity. These concepts are implicit in the funding method: (a) funding related to actual costs, and (b) costs varying due to program and other institutional factors.

The number of states classified as using each of the funding methods was as follows: (a) negotiated budget--12, (b) formula unit--16, (c) minimum foundations--8, and (d) cost-based program--13. Two of the states, Colorado and Oklahoma use two different methods for their two classifications of colleges: state and local.

The median value was selected as the most representative measure to use in evaluating the typical pattern of funding sources for each group of states. The median percentages of support by source of funds for each of the four groups of states are

1. Negotiated budget group: (a) student fees--14%, (b) state funds--81.5%, (c) federal funds--1.5%, (d) local funds--0%.
2. Formula unit group: (a) student fees--22%, (b) state funds--38%, (c) federal funds--3%, and (d) local funds--32%.
3. Minimum foundation group: (a) student fees--15%, (b) state funds--46%, (c) federal funds--4%, and (d) local funds--30.5%.
4. Cost-based program group: (a) student fees--16%, (b) state funds--71%, (c) federal funds--4%, and (d) local funds--0%.

Funds from other sources such as gifts and income from auxiliary services constitute the remainder percentages.

The parameters used as decision points for differentiation of funding in the states include (a) type of college,

(b) type of curricular program or instructional discipline enrollment, (c) the number of students enrolled, (d) the millage level of local tax support, (e) the percentage of the student body enrolled in specified degree programs, (f) the percentage of the student body that is disadvantaged, (g) the geographical location of a college, (h) the students to teacher ratio, (i) the state-wide average cost for college operations, (j) the direct cost of instruction as a percentage of total cost, (k) the cost of administration as a percentage of instructional costs, (l) the presence of a minimum tuition level, (m) line item object of expenditure, and (n) the functional divisions or program functions of a typical college.

The funding rates used in the differentiated allocations are indicative of each state's perceived unit of measure for costs and/or outputs in the funding categories. Table 2 and Table 7 present examples illustrating this concept.

Though the general models for formula unit funding and minimum foundation funding are incongruent with full state support, the states using these methods have some practices which are designed to achieve objectives common with a full state support formula.

Negotiated budget funding is a full state support method, but it has inherent weaknesses. It is (a) subject to political whims, (b) characterized by a large state level staff requirement and tendency toward total state control,

and (c) inherently weak in meeting objectives of equitable treatment of colleges, provision for equality of educational opportunity, and sensitivity to local needs. Negotiated budget funding has intrinsic accountability, but the sacrifice of the other equally important objectives for the sake of accountability would be unacceptable.

Cost-based program funding has the highest potential for meeting all the objectives for which community colleges are established. For this potential to be realized, however, costs must be accurately evaluated, and there must be full-cost funding through an objective allocation method. State-level incentives to improve programs, services, and operating efficiency may be easily included. Likewise, safeguards guaranteeing local control and inputs on local community needs can be an integral part of the process.

CHAPTER IV
A CONCEPTUAL FULL STATE SUPPORT MODEL

Funding Concepts

The proposed model for state support of current operating expenses is a synthesized process evolving from the literature on community college purposes and financing, the current funding practices in the states, and research conducted by others on college costs and funding formulas. From the dominant themes identified in the literature, funding criteria were developed which the process must satisfy. These are:

1. The state recognizes the community college as one of the primary delivery systems for providing publicly supported postsecondary education by providing all the public funds required for current operating expenses.

2. The state recognizes its responsibility for providing equal educational opportunity for all citizens through the community college by requiring an open door policy for admissions and by funding the full cost of all instruction regardless of level.

3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and the responsibility for college operations to local boards of trustees.

4. The state recognizes the advantages and benefits of a long-range, coordinated approach to postsecondary education by providing state-wide coordination of a long-range, comprehensive plan for community colleges through a single state agency.

5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges: (a) guidance, counseling, and placement; (b) community services; (c) general education; (d) career occupational education; and (e) university parallel education; by distributing state funds on the basis of an objective formula.

6. The state recognizes the public demand for accountability and the need for a unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

From the survey and analysis of current funding formula practices in the states, and from research conducted by others on college costs and funding formulas, parameters applicable for differentiation of funding were identified. Those relating directly to differences in college operating costs include

1. Number of students enrolled;
2. Geographical location of campuses;
3. College status of development in terms of campus and curriculum;
4. Type of curricular program and/or distribution of instructional discipline enrollments; and

5. College program functions: (a) instruction and research, (b) extension and public service, (c) library and learning resources, (d) student services, (e) administration and institutional support, and (f) plant operation and maintenance.

Other funding concepts deemed appropriate for the model are related to state agency policy directly affecting college programs and operating expenses. The first of these is a policy on establishment of a contingency or reserve fund to act as a buffer in times of fluctuating enrollment: to serve as a safeguard against errors in estimating projected enrollments. Second is a policy on establishment of an opportunity grants fund to allow discretionary state agency funding incentives for the following (a) encouragement of efficiency in college management, and (b) encouragement of local initiative in establishing and maintaining special needs programs.

The Process Model

There are three distinct parts of the funding process model, and each part should be an assigned operation of the state agency responsible for community colleges. The three parts exhibited in Figure 1 are

1. The annual cost analysis of operations expenditures for each college;
2. The computation of the legislative appropriation request; and
3. The computation of each college's allocation of funds.

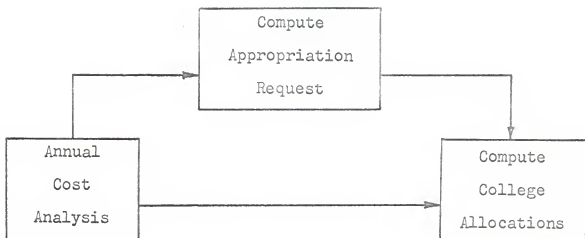


Figure 1

Community College Funding Process Model

Each part of the process is related to the other parts, but each is a distinct procedure and should not be intermixed or confused with the other process activities. Each part of the process involves a set of operations performed on a common data base. The purpose and design of each set of operations, however, should be exclusively a function of the objective for each respective part. The proposed objectives are presented in the following paragraphs.

The Annual Cost Analysis

Objective. The cost analysis is for determining the cost of current operations for each college and the distribution of expenditures among the cost centers within each college.

The cost analysis should be performed by the state agency staff to guarantee uniformity in treatment of data. Each college should provide a magnetic computer tape or a packet of punched computer cards containing all required data

elements for the cost analysis. The data supplied by the colleges should be in a standard tape or card format specified by the state agency. The computer printed cost analysis reports should be sent to the colleges for their information and verification checks.

A cost analysis conducted at the state agency level with immediate feedback to the colleges would provide a service to the colleges. Centralization of this activity maximizes efficiency and accuracy of analysis, and in no way infringes upon local autonomy.

The determination of college cost centers for use in the cost analysis is appropriately a decision that must be made by each state based on its philosophy and experience. This determination, however, should be linked to the parameters used for differentiating funding in the college allocation part of the process. The units of measure and the cost centers to which they are applied should relate directly to college functions, programs, and purposes. Use of intermediate or indirectly related measures, though acceptable for appropriation requests, are not acceptable for either cost analysis or college funding allocations.

The Legislative Appropriation Request

Objective. The appropriation request is for communicating in the best way possible the monetary needs of the state's community college system.

The communication should be most effective if it is in terms, facts, and figures that the individual legislators and their staffs easily understand. The more traditional,

intermediate or indirectly related measures of financial need, where all costs are folded into an ADA or FTE student unit, are preferred.

Data from the cost analysis may be used to produce a state-wide needs request at any level of aggregation deemed appropriate in a given state. The sophistication and desires of a state's legislature should dictate the state agency decision on form, format, and detail.

The College Allocation

Objective. The computation of the funding allocations is for equitable and objective treatment of each college based on its cost of operation and the state's goals and purposes for providing the community college level delivery system.

The allocations should be differentiated in accordance with parameters shared with the cost analysis part of the process. The funding parameters should represent direct measures of activity in the cost centers. The funding units should be directly related to college functions, programs, and purposes.

Provisions should be included in the process to allow supplementary allocations based on merit for special projects. These allocations would be incentive grants for limited periods: one year to three years.

The Allocation Formula Model

Rationale

The Committee for Economic Development (1973, p. 21) has stated its position that funding is appropriate if directed toward agreed-upon goals and is effective if consequences

essential to achieving the goals are produced. Blocker and Bacon (1973, p. 12) have indicated a chief weakness of current funding methods includes a lack of realistic support for community services, research and evaluation activities, and continuing education and development of faculty. Lombardi (1972, p. 21) has addressed the question of expectations for expanded functions for community colleges--community services, career education, disadvantaged students services, ... counseling and instructional innovations--that increase the cost of education, and he indicated most of the impetus comes from outside the colleges. Governmental bodies and agencies, private organizations and accrediting groups, and other educational institutions effect pressure for the expanded functions.

While expectations for community colleges to meet their stated goals and functions have increased, it has been noted that, "Few states have dealt effectively with economies of scale, differential costs of alternative programs, or with equitable allocation of resources in the higher education system" (Cohn, 1974, p. 137). Very little latitude for allocation of resources by a college is possible with most current funding patterns which encourage the status quo (Blocker and Bacon, 1973, p. 12).

Three characteristics of most currently used formulas which cause the formulas to be detrimental in times of decreasing enrollment are as follows

1. The formulas are linear: they are based upon the average cost per student.

2. Due to the economies of scale associated with large colleges, the formula rates have been adjusted downward.
3. Differentiation parameters are based upon the enrollment counts of students at different levels of instruction, but ignore cost differences among programs and/or disciplines. (Boutwell, 1973, p. 42)

Changes in formulas are needed to include economies of scale, program cost differences, and the operational cost differences between implementing new programs and maintaining existing ones. "In particular, formulas must come to approximate the downward sloping cost curve" (Boutwell, 1973, p. 50).

The downward sloping cost curve, also referred to as the U shaped average cost curve, is an accepted representation of the cost function in economic theory (Hu, 1973, p. 61) and in the application of economic theory to education (NEFP, 1971a, p. 36; Rogers & Ruchlin, 1971, p. 61 & p. 372). The curve represents average cost on the Y axis as a function of the level of output X and X^2 . It represents a nonlinear economic relationship of the exponential form of a general quadratic equation, $Y = a x^2 + b x - c x y + d$. Hu (1973, p. 60) states that the nonlinear forms of economic relationships, including the quadratic, can be easily transformed into a convenient linear form and are widely used in econometrics.

The theoretical formulation of the cost function is a derivation from the production function. Most of the basic textbooks on economics contain a presentation showing the relationship between the cost function and the production function. According to Hu (1973)

The simplest form for a cost function is a bivariate relation between total cost and levels of output. The theory of the firm assumes that a firm attempts to minimize its total cost for a given level of output . . . The total cost function is . . .

$$C = P_1 X_1 + P_2 X_2 + \dots + P_n X_n$$

where C is total cost and the X's are the quantities of the different inputs used to produce output, Q. The P's are the respective prices of the X inputs . . .

The total cost function implies that the cost function depends on the input prices as well as on total outputs. (pp. 109-110)

The production function application has been suggested for education in the following form,

$$Q = f (B, X_1, X_2, \dots X_n)$$

where Q represents educational output and B represents the characteristics of the learners.

The variables X_1 through X_n in the production function represent all of the other human and material resources employed in the educational process to produce the educational outcomes. These inputs include, for example, teachers, administrators, and other educational personnel; books, laboratory equipment, and other instructional materials; classrooms, shops, and other educational facilities; and other resources. (NEFP, 1971a, pp. 34-35)

Production costs may be determined by multiplying the units for each factor used in the production process times each respective unit's cost, and the sum of both fixed and variable costs equals the total cost of production (Rogers & Ruchlin, 1971, p. 58).

The relationships of fixed costs, variable costs, and the total cost of production as production increases are graphically represented by the U-shaped cost curve.

Rogers & Ruchlin (1971) describe the dynamics of what the curve represents as follows:

Average fixed costs decline as output increases because the given fixed costs are divided among more and more units as production continues. Average variable costs decline at the beginning, reflecting that part of total variable costs that increase at a decreasing rate. Beyond a point, they begin to increase . . . [variable costs become greater per unit of measurement]. A point is reached where the rate of decline of average fixed costs is outweighed by the increase of average variable costs, and thereafter average total costs also increase. The result is the parabolic or quadratic curve. (p. 59)

In the application of these concepts to education, the units of production are represented by indirect measures of output. The analogy is made for units of student measure and units of measure for instruction to be the units of production. Education is what is produced, but student-time units and/or instruction-time units are used for measures.

Thomas (NEFP, 1971a, p. 35) defined the outputs of his administrator's production function as units of specific service: student-hours and/or student-years. His defined inputs included space, equipment, books, materials, and other resources. His analyses were directed toward determination of the cost of providing a unit of service.

Riew (1971, p. 146) approximated the net relationship between school size and per-student cost, and his conclusion was that a parabolic (or a quadratic U-shaped curve) type of relationship exists. He derived an equation intended as a representative model of what actually takes place in the public school environment during the educational process. He determined statistically that the parabolic cost curve type of

relationship exists between per-student cost and total enrollment: that is, that public schools have economies of scale. He used the method of least-squares multiple regression analysis to determine the coefficients of the variables he selected for the $X_1, X_2, X_3, \dots, X_n$ factors of the cost function. Though the factual data of his study were applicable only to public high schools, the concepts and method may be accepted as an example for a more generalized case including community colleges.

Hu, Kaufman, Lee and Stromsdorfer (1971) have said,

If a production process is under the decreasing-average-cost condition throughout the relevant range of output, it may be more efficient for government to operate this process. To prevent inadequate use of facilities, where decreasing costs are persistent, government should provide the product free of charge or charge a price equal to marginal cost. (p. 93)

This may be construed to mean that, for education, government should assume the full cost for operations occurring in the range of enrollments falling under the downward sloping portion of the cost curve.

Looking again at the total cost function,

$$C = P_1 X_1 + P_2 X_2 + \dots + P_n X_n$$

as commonly accepted for econometric applications, a comparison of business-industry versus public education operational rules are in order. Hu (1973) has stated, "In most empirical cost-function studies variables for input prices P_1, P_2, \dots, P_n are not included in the model. The theoretical argument

for this omission is that if the market is competitive, then the price of any given input is equal for all firms; therefore the input-price variables can be deleted" (p. 110). In the case of public colleges, the theory of the firm would not hold true. The market is not competitive, but is instead restrained by the regulations, policies, and funding rates established by the state. The input-price variables for the model would be different from college to college and, therefore, must be included.

To achieve equity in the allocation of state funds among community colleges in a state, the allocation formula should relate directly to the cost of operating the individual colleges. The allocation formula should represent a mathematical model for a function which is analogous to the cost function,

$$C = P_1 X_1 + P_2 X_2 + \dots + P_n X_n ;$$

and the production function,

$$Q = f (X_1, X_2, \dots X_n).$$

The Model

College costs include distinct elements which may be represented as program cost centers. Each PX element of the traditional cost function represents the price P and the X quantity input for a cost center. Recognition of each of these elements by including them in the allocation formula attests to the equal importance of each in the community college delivery system, and maximizes equity in funding.

Replacing total cost C with the total allocation T, and

replacing each PX cost element with a funding rate R times a program unit measure for the production of a service S , an allocation model may be expressed

$$T = R_1 S_1 + R_2 S_2 + \dots + R_n S_n$$

for "n" number of program functions.

The program functions identified in the literature, in research on community college costs, and in the current funding practices of the states are

1. instruction--credit and non-credit;
2. extension and public service programs in continuing education and community services;
3. student services;
4. library and learning resources
5. administration and general institutional support; and
6. operation and maintenance of the physical plant.

If an element is added to take care of special projects not readily classified under the other programs, the allocation model becomes

$$T = R_1 S_1 + R_2 S_2 + R_3 S_3 + \dots R_7 S_7$$

where

$R_1 S_1$ = the amount for credit and noncredit instruction in the HEGIS disciplines;

$R_2 S_2$ = the amount for extension and public service programs in continuing education and community services;

$R_3 S_3$ = the amount for student services;

$R_4 S_4$ = the amount for library and learning resources;

$R_5 S_5$ = the amount for administration and general institutional support;

$R_6 S_6$ = the amount for operation and maintenance of the physical plant; and

$R_7 S_7$ = the amount for special projects.

In the case where a state provides for the full cost of operating its community colleges, the single rate R and the single unit measure S for each element could appropriately be used as indicated in the simple summation equation for the seven program elements.

If, however, the state does not provide the funding for the full cost of operations for each college, and the individual colleges have developed under conditions of self-determination with respect to curriculum and campus planning, expansion of certain $R S$ elements and inclusion of specific element adjustment factors would be necessary in order to meet the objective of equitable funding. The differential funding parameters relating to college status of development, geographical location, college size and structure, and curricular program profile must be included.

Expansion of $R_1 S_1$. The direct cost of instruction--faculty salaries and fringe benefits--have been documented to be the largest element of cost incurred in college operations (Robertson, 1968; Fowler, 1970; Lombardi, 1972, p. 19).

Research has also shown the cost of providing instruction varies among the disciplines used to categorize curricula (Wattenbarger, Cage & Arney, 1970; Warren, 1971).

If S_1 represents the units of service produced in instruction

and R_1 represents a funding rate for all instruction, $R_1 S_1$ as the instructional funding element may be differentiated into the units of service produced (s) in each instructional discipline and the corresponding funding rate (r) required for each discipline.

$$R_1 S_1 = r_1 s_1 + r_2 s_2 + \dots + r_m s_m = \sum_{d=1}^m (r_d s_d)$$

for "m" number of disciplines (d).

The direct measure for instruction is the contact hour. The contact hour of instruction represents teacher and students in an instructional process for a period of time. The credit hour is computed from the number of contact hours of instruction and may be used as an alternate measure of instructional service. If the credit hour is used in the formula, it should have a clearly defined credit hour equivalent for noncredit instruction which does not penalize the funding for noncredit courses. The FTE student and the instructional position are not considered to be direct measures of instructional activity and, therefore, are not recommended.

Further expansion of the instructional element of the model to include the indirect costs of instruction and adjustment factors for direct cost variations between colleges is necessary. The forty to sixty percent of total college expenditures attributed to this function dictates a necessity for finely detailed discrimination factors in this funding element. The following factors are considered:

F_1 = an adjustment factor for high incidence of faculty with high years of teaching service;

F_2 = an adjustment factor to encourage maintenance of marginal class size; and

F_3 = an adjustment factor to encourage maintenance of marginal teacher contact hour loads.

The funding for instructional support--the indirect cost of instruction--may be either a single rate based on an average cost per hour or a set of rates dependent upon disciplines as is the case with the direct instructional costs.

The allocation, $R_1 S_1$, for credit and noncredit instruction in the HEGIS disciplines is expressed in the final form as

$$R_1 S_1 = \sum_{d=1}^m (r_d s_d) (1 + F_1 + F_2 + F_3) + r_k s_k$$

where

$$F_1 = \frac{\text{Coll. Med. Teacher Yrs.}}{\text{S.W. Med. Teacher Yrs.}} + \left| 1 - \frac{\text{Coll. Med. Teacher Yrs.}}{\text{S.W. Med. Teacher Yrs.}} \right|^{-1}$$

$$F_2 = \frac{\text{Coll. Med. Class Size}}{\text{S.W. Med. Class Size}} + \left| 1 - \frac{\text{Coll. Med. Class Size}}{\text{S.W. Med. Class Size}} \right|^{-1}$$

$$F_3 = \frac{\text{Coll. Med. Teaching Hrs.}}{\text{S.W. Med. Teaching Hrs.}} + \left| 1 - \frac{\text{Coll. Med. Teaching Hrs.}}{\text{S.W. Med. Teaching Hrs.}} \right|^{-1}$$

$d = 1, d = 2, \dots, d = m$; are all the HEGIS disciplines

$r_1, r_2, r_3, \dots, r_d$ = the direct cost funding rates for the HEGIS disciplines (d)

$s_1, s_2, s_3, \dots, s_d$ = the instructional hours produced in the HEGIS disciplines (d)

r_k = the funding rate for all instructional support

s_k = the total instructional hours in all disciplines

The value ranges of F_1 , F_2 , and F_3 are limited by the absolute value part of each function, therefore, limit the range of values for the multiplier $(1 + F_1 + F_2 + F_3)$ as follows: $0 \leq F_1 \leq 0.1$, $0 \leq F_2 \leq 0.1$, $0 \leq F_3 \leq 0.1$, and $1 \leq (1 + F_1 + F_2 + F_3) \leq 1.3$.

With the lowest possible values of F_1 , F_2 , and F_3 being zero and the highest possible values set at one tenth, the lowest value of the adjustment factor multiplier would be one, and the highest value of the multiplier would be one and three tenths. No college would be penalized for having lower median values for teacher years of service, class size, or teacher contact hours, but a funding incentive would exist to encourage median class sizes and median teacher contact hour loads above the state-wide (S.W.) median values. Older colleges with large numbers of faculty having high years of service would have their funding enriched based upon their median years of service being higher than the S.W. median years of teaching service. Any tendency for colleges to employ teachers with high years of service in order to profiteer would be self-limiting. A state need only adjust the divisor--the number 20 in each F function--upward or downward in order to set the maximum possible values desired for F_1 , F_2 , and F_3 .

Expansion of $R_2 S_2$. The amount for this element in the model is the sum of the continuing education units (C.E.U.'s) produced by a college multiplied times the state funding rate for C.E.U.'s, plus the amount generated at a contact hour

rate for other community services activities. The C.E.U. is defined as 10 contact hours of noncredit educational activity.

$$R_2 S_2 = r_e s_e + r_c s_c$$

$$R_2 S_2 = \left(\frac{\$}{\text{C.E.U.}} \right) (\text{C.E.U. total}) + \left(\frac{\$}{\text{Contact Hr.}} \right) (\text{Contact Hr. total})$$

where

r_e = C.E.U. funding rate; and r_c = community service funding rate.

Explanation of $R_3 S_3$. The amount for student services is a function of the number of individual students enrolled in a college. Student services are client oriented activities provided for real persons during finite periods of time. Many of the client services needed by the individual are equally needed by both part-time and full-time students. Functions shared with community services--counseling for example--are more equitably funded on a per person or per contact hour basis. Therefore

R_3 = a \$/capita student rate based on cost analysis;

S_3 = the total student head count of students served;

and $R_3 S_3$ need not be further expanded.

Explanation of $R_4 S_4$. The amount for library and learning resources is a function of total students enrolled and the total number of teaching faculty. The funding should relate directly to the number of individuals served, but accounting for services rendered is not an economically feasible endeavor. Therefore, an approximation based upon use by the total student body and the faculty should be derived. A state-wide per capita student rate is recommended

for use as follows

$$R_4 S_4 = \left(\frac{\$}{\text{Capita Student}} \right) (\text{Total Student Headcount})$$

Expansion of $R_5 S_5$. The costs of administration and general institutional expenses in a college may be considered dependent upon two major factors: (a) the decision to have a college or not to have one, and (b) the organization and structure for operating the college and providing support services. The decision to have a college exist dictates that certain administrative and support functions must be provided. The model should include a block grant amount sufficient to establish and maintain the first and second levels of administration for all college functions. In the case of multi-campus colleges, the third level of administration should be included. Funding at a \$/campus rate (r_s) for this purpose could guarantee equity in supporting the costs that are immediately present after the decision is made to provide a college or an additional campus. The remainder of administrative expenses and general institutional support should be funded based upon units of service provided to students as in Thomas' administrator's production function (NEFP, 1971a, p. 35). The suggested unit of measure recommended for the model is the student head count per year: an approximation related to student-years of service provided. The state should set an administrative and institutional support funding rate (r_a) based upon cost analysis data. The element $R_5 S_5$ thus becomes

$$R_5 S_5 = r_s s_s + r_a s_a$$

$$R_5 S_5 = \left(\frac{\$}{\text{Campus}} \right) \left(\frac{\text{Number of}}{\text{Campuses}} \right) + \left(\frac{\$}{\text{Capita Student}} \right) \left(\frac{\text{Annual Student Headcount}}{\text{Student Headcount}} \right)$$

Expansion of $R_6 S_6$. A college's fixed costs for the operation and maintenance of the physical plant may be dependent to a large degree upon factors and decisions external to the local management of an institution. Certain current costs are dependent upon capital construction decisions made prior to a current year of operation, and upon utility rate decisions made by others. Local college management may only decide whether to use and/or maintain a facility, and decide what personnel positions are required. Under full state support, the state should shoulder the responsibility for the cost of operation and maintenance of its capital investment.

Considering that a state's colleges may be served by different utility companies, that the type of facility construction and age of buildings may vary, and that geographical proximity of facilities affects cost of providing services; the funding for plant operation and maintenance should be based on campus facility factors. The model element $R_6 S_6$ becomes

$$R_6 S_6 = (r_p s_p) (F_4) + (r_o s_o) (F_5) \text{ where}$$

r_p = the state funding rate in \$/square foot for physical plant and ground maintenance;

r_o = the state funding rate in \$/square foot for physical plant operations;

s_p = the total square footage area of permanent college facilities maintained;

s_0 = the total square footage area of both rented and permanent college facilities used;

$$F_4 = 1 + (1 - \frac{\text{S.W. Average Cost of Plant Maint./sq.ft.}}{\text{College Avg. Cost of Plant Maint./sq.ft.}})$$

$$F_5 = 1 + (1 - \frac{\text{S.W. Average Cost of Plant Opera./sq.ft.}}{\text{College Avg. Cost of Plant Opera./sq.ft.}})$$

The value ranges of F_4 and F_5 are limited to positive values only: that is, only the values above zero would apply. If the state-wide (S.W.) average cost per square foot is two times the individual college's average cost per square foot, the value of either F_4 or F_5 would be zero. If the college average cost per square foot is five times the S.W. average cost, the value of F_4 or F_5 would be 1.8. As the average college cost per square foot increases beyond ten times the S.W. average cost, the maximum value of F_4 or F_5 approaches the limit of 2.0. Therefore: $0 \leq F_4 \leq 2$ and $0 \leq F_5 \leq 2$.

Explanation of R7 S7. The special grants element R7 S7 of the model should be used to fund the costs for state-wide projects initiated at the state agency level and meritorious projects proposed for initiation by individual colleges or consortia. The state should use incentive grants for initiation and implementation of state-wide projects--a state-wide change to a new management information system for example--and for continued funding during a limited period of adoption and adjustment. Incentive grants based upon enrollment measures could be used to encourage colleges to improve the percentages of minority or disadvantaged student enrollments.

The availability of opportunity grants should encourage local initiative in proposing projects and programs designed specifically to meet identified local needs. The higher start-up costs related to new program initiation could be funded through the opportunity grants mechanism, and continued funding after an appropriate implementation period would become a part of the cost analysis related process.

The model element is left in the R S form representing funding rate times units of service to encourage projection of cost analyses on special grants projects. Some estimate of units of service and the relationship of service provided versus total cost should be required. Funding should follow the same pattern.

$$R_7 S_7 = \text{Incentive Grants} + \text{Opportunity Grants}$$

The final form of the allocation model is exhibited in Figure 2.

Allocation Rate Determinations

The state-wide average costs for each of the elements in the formula:

$T = R_1 S_1 + R_2 S_2 + R_3 S_3 + R_4 S_4 + R_5 S_5 + R_6 S_6 + R_7 S_7$ should be calculated in the cost analysis phase of the process. The funding rates for each factor should be calculated from the state-wide average costs for the respective factors. The total state allocation minus the funding for special projects is

$$T - R_7 S_7 = R_1 S_1 + R_2 S_2 + \dots + R_6 S_6.$$

$$T = R_1 S_1 + R_2 S_2 + R_3 S_3 + R_4 S_4 + R_5 S_5 + R_6 S_6 + R_7 S_7$$

$$T = \sum_{d=1}^m (r_d s_d)(1 + F_1 + F_2 + F_3) + r_k s_k + r_e s_e + r_c s_c + R_3 S_3 + R_4 S_4 + r_s s_s + r_a s_a + (r_o s_o)(F_5) + (r_p p_4)(F_4) + R_7 S_7$$

T = Total Allocation

$$* F_1 = \frac{\frac{\text{Coll. Median Teacher Yrs.}}{\text{S.W. Median Teacher Yrs.}} + \left| \frac{1 - \text{Coll. Median Teacher Yrs.}}{\text{S.W. Median Teacher Yrs.}} \right| - 1}{20}$$

$$* F_2 = \frac{\frac{\text{Coll. Median Class Size}}{\text{S.W. Median Class Size}} + \left| \frac{1 - \text{Coll. Median Class Size}}{\text{S.W. Median Class Size}} \right| - 1}{20}$$

$$* F_3 = \frac{\frac{\text{Coll. Median Teaching Hrs.}}{\text{S.W. Median Teaching Hrs.}} + \left| \frac{1 - \text{Coll. Median Teaching Hrs.}}{\text{S.W. Median Teaching Hrs.}} \right| - 1}{20}$$

$$* F_4 = 1 + (1 - \frac{\text{S.W. Average Cost of Plant Maintenance/Sq.Ft.}}{\text{College Average Cost of Plant Maintenance/Sq.Ft.}})$$

$$* F_5 = 1 + (1 - \frac{\text{S.W. Average Cost of Plant Operations/Sq.Ft.}}{\text{College Average Cost of Plant Operations/Sq.Ft.}})$$

* The range of values are limited to positive values for F_1, F_2, F_3, F_4, F_5 .

$r_d = r_1, r_2, \dots, r_m$ = the direct cost funding rates for each of the "m" number of HEGIS disciplines of instruction

$s_d = s_1, s_2, \dots, s_m$ = the instructional hours produced in each of the HEGIS disciplines

r_k = the funding rate for all instructional support

s_k = the total instructional hours in all disciplines
 r_e = the C.E.U. funding rate
 s_e = annual total C.E.U.'s awarded
 r_c = community services funding rate
 s_c = total contact hours of community services
 R_3 = funding per capita student for student services
 S_3 = total head count for students served
 R_4 = funding per capita student for library services
 S_4 = total head count for students served
 r_s = funding per campus site
 s_s = number of campus sites
 r_a = funding per capita for administrative services
 s_a = total head count for students served
 r_p = funding per square foot for maintenance of physical plant
 s_p = total square feet of permanent facilities maintained
 r_o = funding per square foot for operation of physical plant
 s_o = total square feet of rented and permanent facilities used
 R_7 = funding rate for special projects
 S_7 = unit of service measure for special projects

Figure 2 Community College Allocation Formula Model

The resulting value for $T - R_7 S_7$ is the sum of a set of linear equations of severable variables which contribute to the overall cost of operation of the colleges of the state. The sum of the several independent linear functions tends toward the total cost per unit curve recognized by some authorities as "the downward sloping cost curve" (Boutwell, 1973). In Figure 3, the cost curve represented by a graph of dollar cost per unit versus a unit measure such as FTE students tends to fit the image of a quadratic equation of the forms

$$a X^2 + bX - cXY - mY + n = 0$$

or

$$a X^2 - bXY + c = 0$$

where

X = the composite independent variable representing a unit measure like FTE students,

Y = the dependent variable representing \$/unit

and

"a", "b", "c", "m" and "n" are coefficients dictated by the conditions in a specific state.

The state-wide cost per unit of measure and, therefore, the state-wide total allocation computation should incorporate the quadratic function fitting the curve for state-wide average costs for all colleges. An attempt to oversimplify the functional relationship to a linear relationship of the form

$$Y = m X + b$$

$$f(X) = aX^2 + bX - cXY + d$$

and

$$Y = f(X)$$

a = coefficient constant

b = coefficient constant

c = coefficient constant

d = coefficient constant

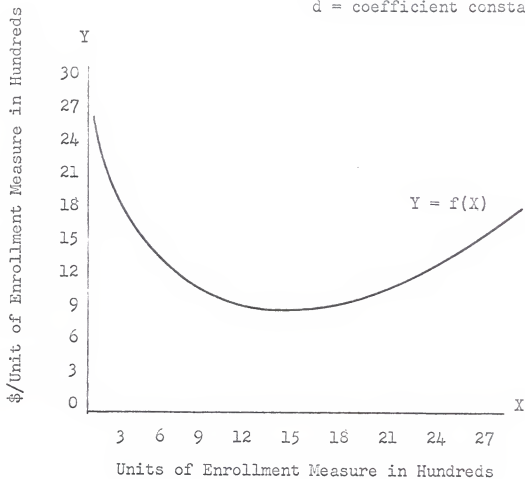


Figure 3 The State-wide Average Cost Curve

where

Y = dollar costs per unit

X = a unit measure like FTE students,

and

"m" and "b" are constants for a single year, can only result in repeated exceptions to funding formula provisions when college needs can not be met.

The total state allocation requested in the legislative appropriation request process should relate to the more accurate representation of cost variance that can be depicted through annual analysis as a quadratic equation curve. Each individual state can determine the values of the coefficients for the equation and can make its own best determinations about inclusion or deduction of factors such as (a) student fees, (b) federal funds, (c) equipment amortization, and (d) cost of living adjustments.

Summary

The six funding criteria developed in Chapter II from the dominant themes identified in the current literature should be used as conceptual guidelines in providing full state support for a system of community colleges. The criteria and the state funding formula parameters identified in Chapter III were used in this chapter to construct a full state support funding formula model.

A funding process model exhibited in Figure 1 presents the three distinct responsibilities of the central state agency in the funding process. These are

1. The annual cost analysis of operations expenditures for each college;
2. The computation of the legislative appropriation request; and
3. The computation of each college's allocation of funds.

The unique objective of each part of the funding process model is given as follows

1. The cost analysis is for determining the cost of current operations for each college and the distribution of expenditures among the cost centers within each college.

2. The appropriation request is for communicating in the best way possible the monetary needs of the state's community college system.

3. The computation of the funding allocations is for objective and equitable treatment of each college based on its cost of operation and the state's goals and purposes for providing the community college level delivery system.

The allocation formula model is represented by the equation

$$T = R_1 S_1 + R_2 S_2 + R_3 S_3 + R_4 S_4 + R_5 S_5 + R_6 S_6 + R_7 S_7$$

where

T = the total college allocation;

$R_1 S_1$ = the amount for credit and noncredit instruction in the HEGIS disciplines;

$R_2 S_2$ = the amount for extension and public service programs in continuing education and community services;

$R_3 S_3$ = the amount for student services;

$R_4 S_4$ = the amount for library and learning resources;

$R_5 S_5$ = the amount for administration and general institutional support;

$R_6 S_6$ = the amount for operation and maintenance of physical plant; and

$R_7 S_7$ = the amount for special projects.

Each of these factors is described in detail in the chapter.

Allocation rate determinations for both the individual college allocations and for the legislative appropriation request should be based on cost functions evident in the annual analysis of college operating costs.

CHAPTER V

APPLICATION OF THE MODEL

One purpose of the survey and analyses of the states' funding formulas in Chapter III was to examine the current practice in each of the states. The identified practice in selected states was to be compared with the conceptual requirements of the funding model presented in Chapter IV. What each selected state would have to do in order to comply with the proposed funding model is presented in this chapter.

Selection of the States

Fundamental philosophical position differences were identified through the analysis and categorization of the states according to the type of approach to funding used. The selection of the states for comparison with the model was undertaken with the prime consideration that full state support of current operating expenses is the basic requirement for compliance with the model. Those states requiring local support have a fundamental philosophical position not congruent with full state support. Each of the funding method groups is reviewed for selection of representative states in the following paragraphs.

Minimum Foundation States

The entire group of states using the minimum foundation funding approach would have to make the change to full

state support in order to be in compliance with the model. These states currently are Arizona, California, Illinois, Michigan, Montana, Nebraska, New Mexico, and Wyoming (see TABLE 4). If the change to full state support were made, the six criteria developed for the theoretical basis of the model would have to be met. These are

Criterion 1. The state recognizes the community college as one of the primary delivery systems for providing publicly supported postsecondary education by providing all of the public funds required for current operating expenses.

Criterion 2. The state recognizes its responsibility for providing equal educational opportunity for all citizens through the community college by requiring an open door policy for admissions and by funding the full cost of all instruction regardless of level.

Criterion 3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and responsibility for college operations to local boards of trustees.

Criterion 4. The state recognizes the advantages and benefits of a long-range, coordinated approach to postsecondary education by providing state-wide coordination of a long-range, comprehensive plan for community colleges through a single state agency.

Criterion 5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges: (a) guidance,

counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (c) university parallel education; by distributing state funds on the basis of an objective formula.

Criterion 6. The state recognizes the public demand for accountability and the need for unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

Next, the requirements of the Process Model would have to be met by (a) an annual college and state-wide system cost analysis performed by the state, (b) development of the state system's appropriation request from the cost analysis data, and (c) development of college allocation rates from the cost analysis data. The final step in the change to the proposed funding model would be for the state to implement the mathematical model for objective allocation of funds appropriated.

No individual state from this group was selected for comparison with the funding model. The preceding comparison would apply to any one of the states.

Formula Unit States

The group of states currently using the funding method categorized as formula unit funding also have local support in every case except for Alabama and Alaska. The conceptual change to full state support would be necessary in each case other than the two exceptions. The maximum percentages of

state support specified as upper funding limits in Maryland, Missouri, New Jersey, New York, Wisconsin, and for Oklahoma's locally controlled colleges would have to be repealed. Full state support based upon the six criteria of the model would have to be implemented, and the other requirements met as was previously stated for the states now using the minimum foundation method.

Alabama and Alaska were the states selected from the fourteen formula unit funding states (see Table 3) for comparison with the proposed model. These two states have full state support, and they are representative of the other states' practices in funding by the formula unit method. What each of these states must do to comply with the model is presented later in this chapter.

Negotiated Budget States

Connecticut, Delaware, Idaho, Kentucky, Louisiana, Maine, Massachusetts, Rhode Island, Utah, Vermont, Virginia, and Colorado (state controlled colleges only) are the states currently using the negotiated budget method of funding. Of these twelve, the eight reporting sources of funding (see Table 1) all indicated full state support for college operations.

Though qualifying on the test for full state support, the basis for determining college support levels is not consistent with certain of the criteria which form the theoretical base for the model. These states would have to make changes to meet the following full state support model criteria.

Criterion 3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and responsibility for college operations to local boards of trustees.

Criterion 5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges: (a) guidance, counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (e) university parallel education; by distributing state funds on the basis of an objective formula.

Criterion 6. The state recognizes the public demand for accountability and the need for a unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

The Process Model requirements for an annual cost analysis and an objective allocation of funds to the colleges come from these criteria. Implementation of the Process Model and the mathematical model for individual college allocations would be required in replacement for the negotiated budget process.

No individual state from this group was selected for comparison with the model. The preceding comparison would apply to any one of the states.

Cost-Based Program States

The proposed model for full state support of current operations is a cost-based program funding model. It could be applied to any of the thirteen states currently using the cost-based program funding approach. Three of these states, however, do not practice full state support, and they each would have to adjust their funding concepts to meet this fundamental requirement. North Carolina, South Carolina, and Texas are the three states.

With the exception of the matter of local support, South Carolina's funding is nearly the same in method as is found for Florida. What is given later in this chapter when Florida's method is compared with the model, may also be applied to South Carolina.

The representative states who were selected for comparison of their funding methods with the proposed model are Arkansas, Florida, Georgia, North Carolina, Tennessee, and Texas. Each of these states was selected because it has current practices which are representative of the practices in the other states and/or are unique in some way.

Comparison of Current State Funding With the Model

Alabama

Funding is currently based upon two factors, (a) total FTE student enrollment, and (b) the college campus existence. Determination of the FTE student funding rates is based upon the regional accrediting association's specified minimum expenditures per FTE to remain accredited. The annual

campus site grant is equal among the colleges and dependent entirely upon what the legislature appropriates.

The current funding method has in common with the proposed model two practices, (a) full state support, and (b) a block grant of funds for each college regardless of its size.

In order to change and use the model as it is proposed, the following actions and adjustments would be required.

1. Criterion 5 of the theoretical base for the full state support model would have to be met. This requires the state to support with equal emphasis all programs designed to implement the goals of community colleges by distributing funds on the basis of an objective formula.
2. Criterion 6 of the theoretical base for the model would have to be met. This requires the state to support the development and implementation of a unified management information system for use at both the institutional and state-wide levels.
3. The process model would have to be adopted and implemented. This includes procedural adjustments:
 - (a) An annual cost analysis for each college and for the state-wide system must be performed;
 - (b) The legislative appropriation request should be based upon the cost analysis data and projected desired changes and improvements;
 - (c) The college's allocations of funds should be based upon functional programs, differences in costs among

instructional disciplines, and differences in costs among the colleges. The funding rates should be determined from the cost analysis data and the commitment to equity of treatment for colleges and students.

4. The mathematical model would have to be implemented for allocation of appropriated funds. The units of measure required for the model would be data elements shared with the cost analysis system. Mathematical adjustments to the F factors in R_1S_1 and R_6S_6 should be made based upon data available through cost analysis. The upper limits of F_1 , F_2 , and/or F_3 may be easily adjusted upward or downward. The upper and lower limits of F_4 and/or F_5 may also be adjusted by changing numerical values.

Alaska

Funding is currently on the basis of credit hours of instruction for academic degree programs. College instructional programs not for credit toward a degree must be financed from fees. This current practice is similar to the model in two ways; (a) there is full state support for credit programs, and (b) state funds are provided according to credit hours of instructional service provided.

Two important differences between the state's current practice and the requirements of the model are, (a) the exclusion of noncredit activities from state funding, and (b) the funding of all college functions through a single \$/credit hour rate for instruction.

A change to the proposed full cost funding model would require that all instruction be funded by discipline, regardless of credit or noncredit status. The total complement of community college funding criteria for full state support would have to be adopted. A major change in funding concept would be evident in the adoption of criterion 5; the requirement that the state support, with equal emphasis, all programs designed to implement community college goals.

Implementation of program funding according to measures of service provided in the program areas would have to be accomplished through adoption of the Allocation Formula Model. For this state to do this, it would have to modify its current funding process to include the cost analysis and other procedures of the Process Model.

Arkansas

Currently this state uses a program type budget formula which is used by colleges for funding requests through the state board to the legislature. The formula is also used to apportion the funds subsequently appropriated by the legislature. This funding process differs from the Process Model proposed in the new model. The state appropriation request and the allocation formula computation would have to be separated into two distinct functional processes if the proposed model was adopted. The common data base of the cost analysis would be the required link between the two.

The state currently funds all the functional programs that are recommended for funding recognition in the proposed

model. The funding for instruction is based upon nineteen disciplines and includes both credit and noncredit courses, as is recommended in the model. The funding for plant operation and maintenance is based upon \$/square footage replacement and service costs according to, (a) type of building use, (b) type of construction, and (c) air conditioned status, as is the similar case in the model. Each of these practices would require very little change to be in compliance with the model.

Implementation of factors F_1 , F_2 , and F_3 in instructional program funding would accomplish compliance in that area if the funding rates were also changed from teacher position rates to unit-of-service rates: \$/credit hour, or \$/per contact hour. Implementation of factors F_4 and F_5 in the plant operation and maintenance function would establish compliance with the model.

The student services function is currently funded based upon allotted counselor positions per FTE students enrolled. This only provides funding recognition for the single student services activity of counseling. To be in compliance with the model, the funding for this function would have to be changed to include funding for all student services activities through a \$/student head count funding rate.

As may be noted in Table 6, the remaining operational functions are currently funded in this state by means of negotiated budget maneuvers. These are (a) extension and public service, (b) library and learning resources, and

(c) administration and general institutional support. These would have to be changed in order to be in full compliance with the model.

Florida

This state meets all the full state support criteria to some degree. It falls short of complete compliance with the criteria in only two areas. With respect to criterion 5, the state recognizes the responsibility for implementing the goals of community colleges through providing programs for (a) guidance, counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (e) university parallel education. Equal emphasis on the importance of each of these functions is not reflected in the funding allocation method used, however. All state funding is folded into the \$/FTE student rates for thirty-four instructional disciplines. With respect to criterion 6, the state recognizes the demand for accountability and the need for a unified management information system, but it has only provided leadership toward that end, not the full-cost funding required.

To adopt the model and implement it, the state would have to change the funding process by separating the legislative appropriation request procedure from the college allocation procedure. The existing cost analysis procedure would need to be modified only very slightly. The locus of activity for producing the cost analysis would have to be shifted from the current localized reporting task to a state-level service activity.

The currently used allocation procedure could be retained as an excellent means for producing the appropriation request to the legislature. The adoption of the Allocation Formula Model for apportioning funds would bring this state into complete compliance with criterion 5. The state would have the option of meeting the funding requirement of criterion 6, either through element five, or through element seven, of the Allocation Formula Model.

This is one of the states that is in an excellent posture to allow easy adoption of the model. The equity funding factors, F_1 through F_5 , in the instruction program and the plant operation and maintenance program could be implemented as an objective means of funding cost differences between colleges, if the Allocation Formula Model were adopted.

Georgia

The funding formula currently in use for those colleges under the state's board of regents includes cost-based program funding in all the program function categories in the model. The currently used allocation formula is different from the proposed Allocation Formula Model in these respects:

1. Funding for instruction and research, and instructional support is provided at \$/faculty position rates, rather than at \$/contact hour or \$/credit hour rates in differentiated disciplines as proposed in the model;
2. The funding equity adjustment factors F_1 , F_2 , and F_3 , proposed in the instructional program element of the model are not currently used in the state's formula;
3. Clerical and technical support staff are funded at a \$/staff position rate in the currently

used formula, rather than being funded through the operational program elements of the proposed model;

4. The functions of general administration, student services, institutional services, and library services are funded at set percentages of other operational programs, rather than being funded at individual rates as specified in the model;
5. The cost differential funding factors, F_4 and F_5 , proposed for the plant operations and maintenance element of the model are not currently used in the state's formula; and
6. No equivalent provision currently exists in the state's formula to take care of funding for special projects as is proposed in the seventh element of the Allocation Formula Model.

The state would have to modify its current practice in the items mentioned above in order to comply with the model.

The state agency staff currently performs annual state-wide cost analyses to provide a basis for rate change recommendations. The existing structure and procedure would have to be slightly changed to comply with the Process Model. The budget appropriation requests and the allocation process would have to be separated into distinct functions.

North Carolina

This state does not provide full state support for all operations. Funding is provided in all program functions specified in the model with the exception of plant operation and maintenance. The current practice of this state is to require total funding support for plant operation and maintenance from local sources. To be fully in compliance with the conceptual criteria which are the basis of the proposed full support model, this state would have to assume the

funding responsibility for the plant operation and maintenance function.

This state uses a budget formula for the purpose of computing funding allocations, and in this respect is not aligned with the concepts presented in the Process Model. Separate processes for computing the appropriation request for state-wide needs and the funding allocations for individual college's needs would have to be established. The requirement of a state-wide cost analysis would link the two processes together.

The currently used funding formula has provisions for funding by (a) instructional unit, (b) administrative and staff position, (c) student in membership (the same as FTE), and (d) line item object of expenditure. This state would have to change to funding rates based upon measures of service in the program functions represented by the elements in the Allocation Formula Model. The state would also have to institute the new concepts represented in the model by the equity adjustment factors, F₁ through F₅, and the funding element for special projects.

Tennessee

The currently used formula is a budget formula which is also used for the purpose of allocating appropriations to the colleges. In this respect, the state's current practice does not follow the procedure proposed in the Funding Process Model. The state does perform cost analyses and uses these results with economic data to adjust by percentage for inflation during each funding cycle. To meet the

requirements of the proposed funding procedure, the state would have to adopt and implement the Process Model.

This state provided in its currently used formula for all the required program functions specified in the model. It also funds these functions in the manner proposed in the Allocation Formula Model and uses the service units and type funding rates suggested in every model element except for the following instances:

1. The equity funding factors, F_1 , F_2 , and F_3 , are not used in the instructional program funding element;
2. Administration and general institutional support are funded with a block grant per college, but no provision is made for the block grant to be extended to and/or increased for multi-campus operations; and the supplementary funding for this element is a percentage of other amounts, not the funding rate times student head count called for in the model; and
3. Extension and public service programs and remedial instruction are funded as a negotiated budget item based upon justification of need.

If adjustments were made in the above listed items, the state could be in compliance with the proposed model.

Texas

The funding for all programs is through forty-five categories of instructional courses, each having a prescribed \$/contact hour funding rate. The state sets the funding rates based upon periodic state-wide cost studies. With respect to the proposed model's requirements for a state conducted cost analysis and differentiated discipline funding for instruction, this state's current practice is similar to the model.

Differences exist between the state's current practice and the model's requirements in several areas, however. The state would need to change to full state support of current operations, rather than continuing the practice of allowing local funding with its attendant funding inequities. The state would need to separate the procedures for legislative appropriation requests and the college funding allocation process. The current practice of funding all college operational functions through the \$/contact hour of instruction rate would need to be changed in order that criterion 5 of the model's conceptual base be met. The state would have to modify its cost analysis to provide data necessary for implementation of the Allocation Formula Model. This change to funding of college program functions based upon measures of service provided meets the requirements of criterion 5.

Criterion 6 has requirements for providing leadership and funding to assist in the development of accountability measures and a unified management information. These requirements would also have to be fulfilled by this state for it to be in full compliance with the proposed model.

Summary

An actual field test of the model was not planned as part of this study. In lieu of a field test, several theoretical applications of the model to selected states were presented in this chapter. The current funding practices in the selected states were compared with the proposed model,

and what each state would have to do in order to comply with the model was enumerated.

The states were selected for comparison with the model based upon three conditions. First, the state must have been either currently practicing full state support for current operations, or operating in a funding posture that would allow an easy change to full state support. Second, the state must have been representative in current practice of the other states included in its funding method grouping as presented in Chapter III. Finally, the state must have been either currently doing something proposed in the model, and/or performing some funding practice which was unique within the funding method group it represented.

No representative state was selected from the minimum foundation group. The philosophical position of funding based upon a state and local sharing of costs is not congruent with the requirement for full state support. What any one of these states would have to do in order to adopt the proposed model was identified in the section on minimum foundation states.

No representative state was selected from the negotiated budget group of states either. Though qualifying on the test for full state support, the basis for determining college support levels is not consistent with three of the criteria which form the theoretical base for the proposed model. The criteria are criterion 3, criterion 5, and criterion 6, found in Chapter II. The comparison of this type funding approach with the requirements of the model in the section

on negotiated budget states applies to all states in this category.

Two states, Alabama and Alaska, were selected for the previously mentioned reasons from the formula unit funding group of states. Arkansas, Florida, Georgia, North Carolina, Tennessee, and Texas were selected as the representative states from the cost-based program funding group. Each of these states' current funding practice was compared with the requirements of the proposed model.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS FOR FURTHER STUDY

The Need for this Study

Historically there is a distinct difference in approaches to funding public community colleges that lies in the initial decision on placement of the locus of control of the institutions. States initially perceiving the community college as higher education have tended to model funding practices in a manner similar to the four-year colleges and universities. Other states have tended to emulate public school funding practices. Only a few have developed procedures specifically designed for the community college objectives and programs.

Within the past decade, states accumulating some experience with operation of community colleges have recognized shortcomings in the funding formulas adapted or adopted from other elements of the public education enterprise. Many states have sought to change funding methods to better meet the needs of community colleges. Concern with costs and resulting cost studies have added impetus.

The availability of data providing visibility to the true costs of operating various types of educational programs in community colleges makes it possible to re¹evaluate resources utilization at the state agency level. Within the established goals and objectives of the state to provide community

college programs, it behooves those in state-level management to implement formulas or methods for apportioning state funds that include considerations for differences in costs of college operations.

The need for the development of more equitable formulas for allocating funds to public institutions of higher education is pointed out by Boutwell (1973) and Cohn (1974). This is supported further in the specific case of the community college by a National Educational Finance Project special study (Wattenbarger, Cage & Arney, 1970). Brossman states the case succinctly, "There needs to be more equity and efficiency in the allocation of state funds to community college districts" (1974b, p. 32).

The Review of Related Literature

Arney (1969) conducted a comprehensive literature search to identify dominant themes relating to financing community junior colleges. His review of approximately seventy-five literature selections resulted in the identification of seven dominant themes, each of which appeared ten or more times in the literature. From the themes, he formulated seven criteria which he used to test state patterns of support for community colleges.

Adopting Arney's method, approximately one hundred literature selections published between 1970 and 1974 were reviewed to either reaffirm the dominant themes or discover new or changed themes. Six of the dominant themes relating to finance of community college operations are reaffirmed as dominant; appearing ten or more times in the current literature.

Arney's seventh identified theme relating to capital outlay financing was not considered applicable. Two new themes relating to financing current operations of community colleges were identified as dominant. The eight themes gleaned from the current literature and presented in CHAPTER II are

1. Postsecondary education is a public responsibility.
2. Equal educational opportunity for all citizens should be provided at the community college level of education.
3. Community colleges should be controlled locally to insure sensitivity to local needs.
4. Community college planning and programming should be coordinated by a single state agency according to a long-range, comprehensive, state-wide plan.
5. The state should assume the leading role in financing the community college level of education.
6. The state should provide support for all community college programs including both credit and noncredit courses.
7. The state should provide means for achieving accountability at the community college level of education.
8. The state should provide a unified state-wide information system for improved management and interinstitutional data comparability at the community college level of education.

These dominant themes were utilized to define state funding criteria for community colleges which relate the philosophy and purpose of community colleges to financing policy and practice. The six funding criteria developed from the dominant themes are

1. The state recognizes the community college as one of the primary delivery systems for providing publicly supported postsecondary education by providing all the public funds required for current operating expenses.

2. The state recognizes its responsibility for providing equal educational opportunity for all citizens through the community college by requiring an open door policy for admissions and by funding the full cost of all instruction regardless of level.
3. The state recognizes the importance of maintaining maximum sensitivity to community needs in the planning, programming, and operation of community colleges by delegating both the authority and the responsibility for college operations to local boards of trustees.
4. The state recognizes the advantages and benefits of a long-range, coordinated approach to postsecondary education by providing state-wide coordination of a long-range, comprehensive plan for community colleges through a single state agency.
5. The state recognizes its responsibility for supporting with equal emphasis all programs designed to implement the goals of community colleges:
(a) guidance, counseling, and placement; (b) community services; (c) general education, including remedial and continuing education; (d) career occupational education; and (e) university parallel education; by distributing state funds on the basis of an objective formula.
6. The state recognizes the public demand for accountability and the need for a unified management information system by providing leadership and full-cost funding for the development and implementation of such systems at both the state-wide level and the institutional level.

Current State Funding Formulas

The funding formulas for allocating state appropriations to community colleges in 47 states were described in CHAPTER III. The state formulas were divided into four groups according to the type funding support model most congruent with each state's funding method. The four-model typology used to categorize the state formulas included the following funding methods.

1. Negotiated budget funding: state funding for individual colleges which must be either annually or biennially

negotiated with a state legislature and/or a state board by college representatives. A corollary requirement may be analysis and approval of each college's budget either as a single entity or by line item.

2. Formula unit funding: state allocation of funds to colleges on the basis of a simple formula specifying a stated number of dollars per unit of measure. The units of measure may be units of instruction, enrollment, output, and/or a combination of these. A minimum local tax effort may or may not be required.

3. Minimum foundation funding: state funding for college districts which is computed at a variable rate dependent upon the amount of local tax funding available at a prescribed minimum millage levy, and/or providing a state guaranteed minimum level of support per student measure. The state guaranteed minimum level of support per student measure must include both state and local funds. The variable rate allocation of state funds may be expressed as either a set \$/student measure amount minus the required local millage levy funds, or the approved district budget minus the amount produced by the required minimum local tax levy.

4. Cost-based program funding: allocation of state funds on the basis of multiple cost centers, detailed instructional discipline categories, program function, and/or budgeted object of expenditure. Cost studies at either the state level, or the college level, or both levels, may be an integral part of the funding process or an implied separate activity. These concepts are implicit in the funding

method, (a) funding related to actual costs, and (b) costs varying due to program and other institutional factors.

The number of states classified as using each of the funding methods was as follows, (a) negotiated budget--12, (b) formula unit--16, (c) minimum foundation--8, and (d) cost based program--13. Two of the states, Colorado and Oklahoma use two different methods for their two classifications of colleges: state and local.

The median value was selected as the most representative measure to use in evaluating the typical pattern of funding sources for each group of states. The median percentages of support by source of funds for each of the four groups of states was as follows

1. Negotiated budget group: (a) student fees--14%, (b) state funds--81.5%, (c) federal funds--1.5%, and (d) local funds--0%.
2. Formula unit group: (a) student fees--22%, (b) state funds--38%, (c) federal funds--3%, and (d) local funds--32%.
3. Minimum foundation group: (a) student fees--15%, (b) state funds--46%, (c) federal funds--4%, and (d) local funds--30.5%.
4. Cost-based program group: (a) student fees--16%, (b) state funds--71%, (c) federal funds--4%, and (d) local funds--0%.

Funds from other sources such as gifts and income from auxiliary services constitute the remainder percentages.

The parameters used as decision points for differentiation of funding in the states include (a) type of college, (b) type of curricular program or instructional discipline enrollment, (c) the number of students enrolled, (d) the millage level of local tax support, (e) the percentage of

The student body enrolled in specified degree programs, (f) the percentage of the student body that is disadvantaged, (g) the geographical location of a college, (h) the students to teacher ratio , (i) the state-wide average cost for college operations, (j) the direct cost of instruction as a percentage of instructional costs, (l) the presence of a minimum tuition level, (m) line item object of expenditure, and (n) the functional divisions or program functions of a typical college.

The funding rates used in the differentiated allocations are indicative of each state's perceived unit of measure for costs and/or outputs in the funding categories. TABLE 2 and TABLE 7 present examples illustrating this concept.

Though the general models for formula unit funding and minimum foundation funding are incongruent with full state support, the states using these methods have some practices which are designed to achieve objectives common with a full state support formula.

Negotiated budget funding is a full state support method, but it has inherent weaknesses. It is (a) subject to political whims, (b) characterized by a large state-level staff requirement and tendency toward total state control, and (c) inherently weak in meeting objectives of equitable treatment of colleges, provision for equality of educational opportunity, and sensitivity to local needs. Negotiated budget funding has intrinsic accountability, but the sacrifice of

the other equally important objectives for the sake of accountability would be unacceptable.

Cost-based program funding has the highest potential for meeting all the objectives for which community colleges are established. For this potential to be realized, however, costs must be accurately evaluated, and there must be full-cost funding through an objective allocation method. State level incentives to improve programs, services, and operating efficiency may be easily included. Likewise, safeguards guaranteeing local control and inputs on local community needs can be an integral part of the process.

The Full State Support Model

The six funding criteria developed in CHAPTER II from the dominant themes identified in the current literature are recommended as conceptual guidelines in providing full state support for a system of community colleges. The criteria and the state funding formula parameters identified in CHAPTER III were used in CHAPTER IV to construct a full state support funding formula model.

The Funding Process Model exhibited in Figure 1 presents the three distinct responsibilities of the central state agency in the funding process. These are

1. The annual cost analysis of operations expenditures for each college;
2. The computation of the legislative appropriation request; and
3. The computation of each college's allocation of funds.

The objective of each part of the Funding Process Model is

1. The cost analysis is for determining the cost of current operations for each college and the distribution of expenditures among the cost centers within each college.

2. The appropriation request is for communicating in the best way possible the monetary needs of the state's community college system.

3. The computation of the funding allocations is for objective and equitable treatment of each college based on its cost of operation and the state's goals and purposes for providing the community college level delivery system.

An Allocation Formula Model is presented in CHAPTER IV as the equation

$$T = R_1 S_1 + R_2 S_2 + R_3 S_3 + R_4 S_4 + R_5 S_5 + R_6 S_6 + R_7 S_7$$

where

T = the total college allocation;

$R_1 S_1$ = the amount for credit and noncredit instruction in the HEGIS disciplines;

$R_2 S_2$ = the amount for extension and public service programs in continuing education and community services;

$R_3 S_3$ = the amount for student services;

$R_4 S_4$ = the amount for library and learning resources;

$R_5 S_5$ = the amount for administration and general institutional support;

$R_6 S_6$ = the amount for operation and maintenance of physical plant; and

$R_7 S_7$ = the amount for special projects.

Each of these elements is described in detail in Figure 2.

Allocation rate determinations for both the individual

college allocations and for the legislative appropriation request should be based on cost functions evident in the annual analysis of college operating costs.

Application of the Model

A field test of the funding model was not a part of this study. In lieu of a field test, several theoretical applications of the model for selected states were presented in CHAPTER V. The current funding practices in the selected states were compared with the proposed funding model, and what each state would have to do in order to comply with the model was enumerated.

The states were selected for comparison with the model based upon three conditions. First, the state must have been either currently practicing full state support for current operations, or operating in a funding posture that would allow an easy change to full state support. Second, the state must have been representative in current practice of the other states included in its funding method grouping as presented in CHAPTER III. Finally, the state must have been either currently using a concept proposed in the model, and/or performing some funding practice which was unique within the funding method group it represented.

No representative state was selected from the minimum foundation group. The philosophical position of funding based upon a state and local sharing of costs is not congruent with the requirement for full state support. What any one of these states would have to do in order to adopt the proposed model was identified in the section on minimum foundation states.

No representative state was selected from the negotiated budget group of states either. Though qualifying on the test for full state support, the basis for determining college support levels is not consistent with three of the criteria which form the theoretical base for the proposed model. The criteria are criterion 3, criterion 5, and criterion 6, found in CHAPTER II. The comparison of this type funding approach with the requirements of the model in the section on negotiated budget states applies to all states in this category.

Two states, Alabama and Alaska, were selected for the previously mentioned reasons from the formula unit funding group of states. Arkansas, Florida, Georgia, North Carolina, Tennessee, and Texas were selected as the representative states from the cost-based program funding group. Each of these states' current funding practice was compared with the requirements of the proposed model in CHAPTER V.

Recommendations for Further Study

The survey of the literature, the survey of current state funding practices, and the process of developing a proposed funding model for full state support of community colleges, have each contributed to a number of questions yet to be answered. The need for additional research on community college costs and financing is concluded to be an imperative issue. The following recommendations for topics of further study are, therefore, submitted.

1. A state having current community college cost analysis data should be selected for a computer simulated test of the Allocation Formula Model developed in this study.

2. A study should be conducted based upon state-wide cost analysis data to determine the coefficients and exact form of the hyperbolic quadratic equation that will mathematically represent the given state's total cost for operating a system of community colleges. The development of such mathematical tools may prove helpful in forecasting needs.

3. Examination of mathematical modeling techniques currently in use in the discipline of econometrics may prove to be useful in developing applications for community college financing.

4. A study should be conducted in a selected state to determine the typical sources of actual cost differences for operating community colleges.

Appendix A

Survey Instrument for 1972-73

FORMULA USED FOR STATE-LEVEL APPORTIONMENT OF FUNDS
FOR CURRENT OPERATING EXPENSES

Purpose: This questionnaire will be used by the University of Florida/Florida State University Center for State and Regional Leadership in a nation-wide study of states' formulas for funding operating expenses of local institutions.

1. Please provide, in the space below, the formula or formulas used to apportion state-level funds* for operating expenses to community/junior colleges in your state. Additionally, please provide the formula for the distribution of capital outlay funds if such a formula exists and is different from the operating expenses formula.

Operating Expenses Formula: _____

Capital Outlay Formula: (if different from operating expense)

*State-level funds are all those monies that are distributed by the state-level agency in a proportion or "formula" determined by that agency.

Appendix A continued
Survey Instrument for 1972-73

2. Please list the total amount apportioned for the last three years and the number of institutions that received the funds:

Amount	Number of Institutions**
1970 _____	_____
1971 _____	_____
1972 _____	_____

If available, please attach copies of the legislation governing the method and amount of apportionments.

THANK YOU FOR YOUR COOPERATION!

*State-level funds are all those monies that are distributed by the state-level agency in a proportion or "formula" determined by that agency.

**Consider multi-unit institutions as one institution.

Appendix B

Survey Instrument for 1973-74

Center for State and Regional Leadership

Institute of Higher Education

University of Florida

1973-74 Funding Formula Survey

State Reporting _____

1. How are state funds for current operating expenses allocated to individual community colleges in your state? (check one)

Individual college legislature approved budget _____
Individual college board approved budget _____
Allocated to college on bases of FTE _____
Allocated to college on basis of credit hours _____
Allocated to college on basis of formula _____
Other (explain) _____

2. Where is the formula or method of apportioning state funds to the community/junior colleges established?

State Law _____
State Board Regulations _____
State Administering Agency Policy _____

3. a. Has the formula or method of apportioning state funds for community/junior college operating expenses used in 1972-73 changed for 1973-74? Yes _____ No _____
b. Will it change for 1974-75? Yes _____ No _____

Appendix B continued

Survey Instrument for 1973-74

4. Please state the new formula used to apportion state funds to the community/junior colleges for their current operating expenses. (Please use attachments as necessary.)

Circle One: 1973-74 1974-75

5. Please furnish the proportions of support by category that are used state-wide for current operating expenses for the community/junior colleges.

State Appropriations	_____ %
Federal Funds	_____ %
Student Fees	_____ %
Local Taxes	_____ %
Other (Specify)	_____ %

6. Please provide the 1973-74 state appropriations amounts for the community/junior colleges:

Current Operations	\$ _____
Capital Outlay	\$ _____

7. Please furnish the proportions of support for capital outlay expenses. (State-wide Average)

State Appropriations	_____ %
State Board Allocations	_____ %
Local District Boards	_____ %
Federal Grants	_____ %

Appendix B continued
Survey Instrument for 1973-74

8. Please send a copy of the (check one):

State Law _____

State Regulations _____

that stipulates the methods and restrictions for
financing community/junior college capital outlay
expenditures.

WE HOPE TO HAVE REPORTS ON THIS READY EARLY IN SPRING.
YOUR COOPERATION WILL BE APPRECIATED.

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BIOGRAPHICAL SKETCH

Paul Marion Starnes was born November 25, 1938, at Newnan, Georgia. He attended elementary and secondary schools there, and graduated from Newnan High School in 1956. After attending the Georgia Institute of Technology for one year, he entered the U. S. Air Force. In June, 1962, he was honorably discharged from military service after serving four years in the Strategic Air Command. In 1964, he graduated from St. Johns River Junior College, Palatka, Florida, and entered Florida State University. In August, 1965, he received the degree of Bachelor of Science with a major in vocational education. During 1965-66 he taught electronics and technical mathematics at St. Johns River Junior College. In 1966, he enrolled in the Graduate School of the University of Florida and was awarded an NDEA Fellowship. In 1967 he received the degree of Master of Education and accepted the position of Director of Technical Education at St. Johns River Junior College. He returned to the University of Florida in January, 1973, on sabbatical leave, and received the degree of Specialist in Education with a major in educational administration in August, 1973. Since this date, he has continued graduate study toward the degree of Doctor of Philosophy with a major in educational administration and concentrations of study in junior college administration and vocational education.

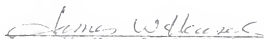
Paul Marion Starnes is married to the former Sally Frances Hughes of St. Augustine, Florida. He is the father

of two sons, James and Joel. He has continued on the faculty of St. Johns River Junior College as Director of Vocational-Technical Education and Chairman of the Mathematics Division. He is also Director of Electronic Data Processing and Management Information Systems development. He is a member of the Kappa Alpha Order and Phi Delta Kappa fraternities, and he has been active in various civic and professional organizations.

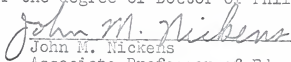
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


James L. Wattenbarger, Chairman
Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

June, 1975

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